MODERN ECONOMICS

Elements and Problems

by

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Preface

This book is a combination of the revised edition of *Elements of Modern Economics* and of *Modern Economic Problems.* The sequence of chapters has been planned, as far as possible, to permit the discussions in the Problems to follow immediately after the theory of which they are an application. If in one or two cases this arrangement appears to lead the student rather quickly into deep water, I believe that little will be lost by postponing the Problems chapter for later consideration.

In the prefaces to the earlier editions I have had occasion to acknowledge the help and kindly criticism of numerous friends. My debt to them is multiplied by the combining of the two books into one volume. They are:

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ALBERT L. MEYERS

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MODERN ECONOMICS

Elements and Problems

CHAPTER I

The Nature of Economics

ECONOMICS is the science that deals with human wants and their satisfaction. We might also say that economics is the science that deals with those social phenomena arising from the wealth-getting and wealth-using activities of man. If each of us possessed an Aladdin's lamp which we had merely to rub in order to have any of our desires gratified immediately, there would be no economic problems and no need for a science of economics. Unfortunately, Aladdin's lamps exist only in Arabian fairy tales. In this real world of ours, the means of satisfying our wants exist in such limited amounts compared to our needs for them, and in such unsuitable forms and inconvenient places, that it requires human effort to obtain from nature the materials we want, to change them into suitable forms, and to deliver them at convenient places and convenient times for the satisfaction of our needs. We must either make this effort ourselves or find some method of inducing others to do so for us. Such inducement may take the form of coercion, as under slavery or serfdom; or it may take the form of the exchange of our own services for the goods and services of others; or we may offer in exchange for the things we want the goods or claims to goods which we have acquired in the past through our own labors, through inheritance, by fraud or theft, by begging or charity, or by gifts from others.

Primary Economic Problems

For most of us the goods we possess and the means of acquiring more are strictly limited. Consequently, any good or service that we acquire means that we must be content with less of something else which might have been obtained by the same effort or expenditure. We are confronted with the problem of determining what combination of goods and services will yield us the greatest amount of net satisfaction. This is an economic problem both for us as individuals and for society as a whole.

The primary economic problems of the production of wealth, the consumption of wealth, and the distribution of wealth will continue to be present regardless of either the economic or the political system under which we operate. Communism, Socialism, or Fascism, although essentially different attempts to solve these problems, would in actual practice eliminate none of them. Since it is the capitalist system under which we are living, we shall devote our attention to an attempt to understand how this system operates and the principles which explain its motivation.

Economics, being a social science,[1] is denied many of the means of experimentation and research which are open to the natural sciences. Human beings have wills of their own and resent being treated as guinea pigs for the purpose of social experimentation. The chemist and the physicist can perform their experiments in a vacuum at absolute temperature, and in sterile test tubes, thus reducing the extraneous elements to a minimum and confining attention to a single cause-and-effect relation. The economist, on the other hand, is forced to rely very largely on the more indirect method of observing man's actions in society. Under these circumstances, when we wish to ascertain the effect of a single cause, we are forced to make a mental abstraction to allow for the influence of other causes in which we may not be interested at the moment, but which may be of great importance in producing the actual result which is under our observation. It is for this reason that we so often find economists making use of the phrase "other things being equal" although they recognize that in the actual world such things never are "equal."

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[1] See Robbins, Lionel, *The Nature and Significance of Economic Science,* The Macmillan Co., New York, 1932, for a fuller discussion of this problem. This book also contains an excellent appraisal of the uses and limitations of the statistical method in economics.

Basic Assumptions of Economic Theory

The beginning student will save himself many hours of bewilderment if he takes special care to familiarize himself with the *assumptions* which underlie the formulation of economic principles by the economist. Failure to realize the significance of these assumptions gives rise to the loose misstatement, so often heard, that something "is all right in theory but all wrong in practice." Nothing that is wrong in practice is ever right in theory. If the conclusions of theory do not harmonize with apparent results in practice, either the theory itself is wrong, or we are attempting to apply the theory to practical conditions without recognizing the difference between actual circumstances and the *assumed conditions* which were postulated in the statement of the theory. For example, in economics we formulate the proposition that, other things being equal, people will buy more of the same product at a lower price than they will at a higher price. The proposition as stated is perfectly true; but let us examine some of the assumptions implicit in the phrase "other things being equal" that may or may not be fulfilled in practice. It is assumed: (1) that people's incomes remain the same; (2) that their tastes remain the same; (3) that the prices of other goods remain the same; (4) that people do not assume that this decline in price is a prelude to further decline; and (5) that the product is not one which depends upon its high price for "prestige value" (for instance, if anchovies should drop to $5.00 a ton in price, they would no longer confer any distinction upon the hostess who served them as *hors d'oeuvres,* and they would have to depend for their market upon those who actually liked them. Sales might actually be less than at the higher price. In any event, if sales did increase, they would probably not increase in proportion to the decline in price). We see, then, that in attempting to apply this proposition in practice and to predict whether a decline in a given price will increase the sale of a product, we must know the assumptions upon which the principle rests and the extent to which they are fulfilled by the practical situation. The failure of any one of these conditions to be fulfilled in practice necessitates a further study to ascertain how this will affect the final result.

The importance of assumptions in economic reasoning cannot be overemphasized. If an economist is not careful to keep them clearly in mind, he may very easily slip into a faulty chain of reasoning or apply his logical sequences to a situation which does not satisfy his original assumptions. You will also find that although they may be aware of their own assumptions and of the limitations which they impose, many writers on economics will neglect to state fully what their assumptions are. When an author's assumptions are implied rather than expressed, it will facilitate your understanding of his work if you will be very careful to ask yourself what assumptions are necessary to render his reasoning valid. This will not only help you to understand what the author is trying to say, but it will also help you to detect any errors that may be present in his reasoning; it will also help to save you from attempting to apply the reasoning to other conditions not warranted by the assumptions.

One of the most important assumptions underlying all economic reasoning is that of the rationality of human conduct. By this we do not mean that all individuals are highly intelligent or educated, nor that their actions will conform to the precepts of good conduct as laid down by the physician, the moralist, or the arbiter of social etiquette. All that we are implying by rational conduct from the viewpoint of economic science is that, given a choice among several lines of conduct, a rational individual will *try* to select that course of action which *seems to him* to promise either the greatest amount of satisfaction or the least amount of dissatisfaction. For example, if offered a choice between identically the same kind of articles (and knowing them to be the same) at different prices, the rational individual will choose the cheapest. Or, if offered a number of distasteful jobs all at the same rate of pay, the rational individual will choose that one which promises to be least distasteful (if accepting charity seems to be still less disagreeable, he will not work at all).

Obviously, if the economist were to try to explain the ultimate causes which motivate the rational action of an individual, he would be forced to duplicate the work which is at present being attempted by the psychologist. Why rational human beings desire to ornament themselves with diamonds is a matter for the psychologist to explain. But given the fact that they do desire them, and that diamonds are relatively scarcer to human wants than bread, the economist can explain why the price of diamonds is higher than that of bread under ordinary circumstances.

Of course, it must not be assumed that each individual goes through a lengthy process of reasoning every time he has an economic decision to make. *Habit* is a great saver of mental effort. Once an individual has found that a certain brand of coffee satisfies his taste and meets his requirements as to price, he is likely to continue to ask for that brand every time he requires more coffee, rather than to expend again the mental effort necessary in making a comparison of the various brands and prices of other coffees. But the habit may persist long after the reason for it has passed. The prices of better coffees may have dropped, or the coffee he has been using may have deteriorated in quality without his becoming aware of it. The nauseous lengths to which the radio advertisers go in their efforts to get us to try a certain brand of product are an evidence of the persistence of the habits which they feel they must combat. We shall have more to say about this important influence of habit later on. For the present it is sufficient to remember that many economic phenomena may be explained only by the persistence of human habits.

Another very strong force which tends to modify or influence the economic conduct of rational individuals is *social habit* or *custom.* It is not our purpose here to trace the rise and decline of social habits. That is largely the task of the sociologist, even though economic motives have often played an important part in the formation and in the breakup of social habits. Social customs are enforced by group opinion, by law, or by both law and opinion. When an economically rational individual is confronted with a social custom that forbids a course of conduct which he desires to follow or which prescribes a line of conduct that he does not like, he has four possible alternatives to consider: (1) he may conform to the custom; (2) he may try to evade it; (3) he may openly defy it; (4) he may try to have the custom abolished or changed. The alternative he chooses will depend both upon the intensity of his desire to do the forbidden act and upon the relative degree of dissatisfaction promised by the different alternatives. Since the first alternative involves no effort or dissatisfaction except that of giving up the thing desired, it will be the usual course followed by most people, unless the attainment of the desired end appears so desirable as to outweigh the disadvantages of one of the other alternatives. The second alternative involves the individual's estimate of the chances of being caught and of the disagreeability of the penalties if he is found out. The third alternative involves an outright acceptance of the social disapproval and other penalties which may follow upon the given course of action. If the fourth alternative is chosen, the individual must have a considerable amount of altruism and be lieve that the change will benefit others as well as himself, or the personal gain from the change must be great enough to justify the effort required to persuade the community to change its custom.

We have perhaps strayed somewhat into the realm of sociology. Yet when we realize that prohibition provides an economic incentive for the bootlegger, that high taxes encourage evasion, and that styles and changes in styles can result in prosperity or bankruptcy for the businessman, then we may understand the importance of social habits, customs, and laws in influencing our economic actions.

The reader can easily see that if our science is to explain the economic life of a community, it must devote its main attention to the rational economic calculations of the average man. With the help of the psychologist, we might attempt to explain the economic decisions of the paranoiac or the cretin, but this would be of little help in explaining everyday economic affairs. It is equally true that economic laws based on the rational conduct of the average individual will not, without modification, explain fully the economic conduct of any one person. To the extent that the individual differs from the average, we must allow for personal idiosyncrasies. But if we have taken proper account of the rational actions of the average individual, we should be able to explain the economic actions of a group of persons and to predict under certain circumstances the way this group will react to different economic stimuli.

The Vocabulary of Economics

The beginner must be warned that he will have to master a technical economic vocabulary. Instead of coining new words, however, or using Latin or Greek terms as many of the other sciences do, economics has created its own vocabulary by taking words in ordinary everyday use and assigning special meanings to them. Unless the student is careful, this will be a source of confusion to him. For instance, "demand," "supply," "value," "utility," and other words have a far more restricted and exact meaning in economics than they do in common speech. Still more unfortunate from the student's point of view is the fact that not all economists always mean exactly the same thing when they use the same term. The only resource left to the student is to familiarize himself very carefully with the definitions of the book he happens to be reading in order to be sure to understand the author's meaning. The author of this book will try to use economic terms in their most usually accepted economic sense, and to define them as carefully as possible. The student must be alert, however, when reading other economic texts or articles on economic subjects in the public print, to detect different meanings assigned to the words used in this book.

Someone has said that economics is only common sense made difficult. To a great extent the statement is true. The student who will attempt to understand and apply the concepts he learns from this text will have made a start toward becoming an economist and toward understanding some of the economic questions which are agitating our country today. The student who merely attempts to memorize will have cluttered his mind with useless lumber.

CHAPTER II

The State and Economic Policy

WHAT role the state should play in economic activity is one of the most difficult questions for the average individual to approach with an open mind. Most of us have simply accepted by absorption the ideas of the particular family or social group to which we happen to belong, without taking the trouble to examine or question these ideas on their own merits. This attitude is apt to be equally true whether we are the children of mineowners or mineworkers; of sweatshop owners or members of the Amalgamated Clothing Workers; of steamship owners or seamen; of chain store operators or of small independent retailers.

It is not the purpose of the author to advocate any particular cause or "ism." The minute that the economist indulges in such advocacy, he ceases to be an economist and becomes a politician or a moralist.[1] *As an economist,* all that he can do is to advise the politician, the moralist, or the social reformer as to the *economic* causes and consequences involved in their proposals. The economist may, therefore, say to the politician: "You desire to achieve a certain result for the people, but the plan you propose will not bring about the result you desire because of such and such economic principles." Or: "You desire to achieve two different results, but these two results are not consistent with each other. If you attain one it will prevent you from attaining the other. Consequently you must choose between them." Or: "You desire to attain a certain result. It can be done, but only at such and such costs. Is the result worth the cost?" Or: "You desire to achieve a certain result. It can be done by any one of the following methods, each of which has such and such a cost. This is the one which will cost the least."

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[1] See Robbins, Lionel, *The Nature and Significance of Economic Science,* The Macmillan Co., New York, 1932

It will be noticed that the economist, *as an economist,* passes no judgment on the merits of the desired result itself. For instance, economics cannot prove whether or not this country would actually be a better place if everyone had absolutely equal wealth and absolutely equal income. (It may be doubted whether any other science could settle this question either, since the desirability of economic equality is disputed and hence there are no absolute criteria on which to base judgment.) Granted, however, that it is desired to bring about a situation in which all wealth shall be equally distributed, economics can show what would be the probable results of attempting to achieve such an end by taxation, by direct expropriation of wealth, or by whatever other means may be proposed. Economics can show further the probable changes in total expenditures by the people after wealth was so divided. It can also show (since people with smaller incomes ordinarily spend a greater percentage on consumer's goods than people with larger incomes) that, with equal incomes, total savings and total investment in capital goods would decline if saving were still to be a matter of individual choice. Perhaps our present rate of material "progress" is too rapid. Who knows? Nevertheless, we do see that rapid expansion of capital equipment is not consistent with equal incomes and voluntary saving. To meet this problem in Russia, the state has taken over the function of saving and investment by forcibly directing a certain amount of the labor and resources of the country to the production of capital goods, rather than consumer's goods. Whether the Russian worker is better off under successive Five-Year Plans than the American laborer under "exploitation" can partly be answered by budgetary studies, but must remain partly a matter of opinion.

It is not the intention of the author to influence opinion on questions such as these. He will be entirely satisfied if the reader has the same opinion after he has finished this book that he had before he started it. He will be more than pleased, however, if the book contributes in some measure to the formation of an opinion, based on reasoned judgment, instead of prejudice, on the questions which will be discussed.

The sphere of influence of national governments in the economic life of their individual citizens is widening greatly and is apt to continue to increase, regardless of the political form of government adopted, and even regardless of the avowed politico-economic philosophy of the parties in power. The fundamental structure of our economic life has become so complicated through specialization and through the interdependence of individual economic activity that we are confronted with a strange paradox. Even the advocates of laissez faire and the people who advocate "less government in business" are forced to devise laws to put their aims into effect or to attempt to achieve the ends they desire.[2]

Man's economic life has always been a struggle to obtain means for the satisfaction of his wants. Strange as it may seem, however, many of the most perplexing problems of governments of modern times arise out of the increasing command over natural forces which scientific discovery has given to man. There was no electric power problem until he discovered and harnessed electricity; no railroad problem until railroads were invented; no farm problem in the modern sense until agronomy and mechanization had increased agricultural yields and until modern transportation fostered production for a world market, and no problem of labor and capital in the modern sense until the invention of tools and machines, too expensive for the individual workman to own, prevented the individual laborer from being his own capitalist

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[2] See Simons, Henry C., *A Positive Program for Laissez Faire*, University of Chicago Press, 1934.

It must not be assumed, however, that control by the state over the economic life of the individual is anything novel or startling[3] It would be hard to imagine a more "regimented" form of "economic planning" than existed in the prescribed system of agricultural life on the medieval Manor, even as the control over the individual in the ancient city-state of Sparta probably still leaves something at which Mussolini and Stalin may shoot The hereditary caste system of occupations in India might be cited as another example, although not one that resulted from conscious planning The very existence of the state is a restriction on the individual, regardless of the benefits which may flow to the individual from such existence

It may be doubted whether any state has ever existed that did not exercise some form of control over property The question in dispute over governmental policy, however, is seldom the fact of such control What we dispute about is What constitutes property? Who shall own the property (individuals, groups or the state)? How shall property be acquired or disposed of? If property is privately owned, how much and in what manner shall it be taxed?

In spite of what we have said about the antiquity of government control over economic life, there are many aspects of the problem of government and business which have a distinctly modern flavor Most of the ancient states were confronted with the relatively simple problem of crystallizing into laws the customs of an agrarian or pastoral people which had been developed and tested over long periods of time. The modern state, however, is confronted with the problem of changing its laws to conform to the much more rapid rate of technological and economic development which exists today. Furthermore, the modern state, in a greater or lesser degree, is attempting to direct consciously and actively the course of such development to particular ends. Both the ends to be achieved and the means by which such ends are to be attained are matters about which there are many grounds for legitimate differences of opinion.

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[3] See MacKenzie, Findlay, *Planned Society Yesterday, Today, Tomorrow*, pp 3–156, Prentice Hall, Inc, New York, 1937

In considering the role of the state in economic activity, we must constantly be on our guard against two contradictory tendencies: one, a blind acceptance of existing conditions, the other, a too ready acceptance of change merely with the idea that any change will be an improvement. Too long a period of strict adherence to traditional institutions and concepts may build up a backlog of specific abuses that may lead to revolution, peaceful or violent. Too rapid acceptance of sweeping changes leads to uncoordinated reforms that are apt to defeat each other's purposes, and the mere speed of adoption may give the economic system a stomach-ache in the attempt to digest them.

We should be even more on our guard against the mere calling of names when specific legislation is under consideration. Both sides in a controversy usually resort to these tactics. Democracy cannot survive unless the people will go behind the catchwords, slogans, and cartoons to find the real issues involved, and to make their decisions on these issues.

We shall have more to say about the functions of government in connection with the specific problems discussed in the following chapters. It may help us, however, to review briefly at this time the more general functions of government in relation to economic activity.

Establishment of Definitions

One function of government is that of providing standard definitions so that people may know that they are talking about the same thing when they make an agreement Thus, government defines what is to be considered property, what is a valid transfer of property, what is a claim of debt, and how such a claim may arise It also establishes weights and measures, such as the pound, the quart, the foot, and the bushel It defines what is to be considered as legal money It may define grades for certain products such as corn or cotton[4] This list of definitions made by government might be extended to some length, and their establishment is a tremendous help, without which modern business could be conducted only with extreme difficulty Most of these definitions were established through the insistence of businessmen themselves (The still faulty nature of some of the definitions provides lucrative employment for lawyers)

The Regulatory Function

A second, and extremely important, function of government is the establishment of regulations governing the economic conduct both of individuals and of business firms Some of these regulations are designed to prohibit certain activities entirely (for example, laws against the purchase of stolen goods), while others may place very sharp limitations upon the field of business (laws prohibiting the sale of narcotic drugs without a doctor's prescription) Most of the regulations are designed to prevent certain specific abuses, either of one individual against another, of one business firm against another, of business firms against their employees or the public, or of individual actions against what is deemed to be the public welfare. Merely to list all of the regulations by Federal, state, and local governments that affect the economic life of individuals or businesses would require many volumes the size of this book This large number of laws is due not only to a developing social conscience which tends to outlaw many old practices formerly considered permissible, but also to the fact that modern technology and modern economic development bring about many situations which the old laws fail to cover (Old and useless laws of course tend to survive in our system unless they are systematically eradicated from time to time)

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[4] In some cases, the government simply takes grades or weights and measures already in use by the trade and gives them legal status In other cases the government may actually establish standard grades where none have been in use before.

For regulations to be passed by the legislatures and sustained by the courts it must be shown that they are in the interests of the "public welfare" At least in English-speaking countries, the presumption is in favor of individual liberties and private property When a measure is proposed which will infringe on individual liberty or impair rights in private property, it must be shown that the "welfare of the community" will be increased sufficiently to justify the infringement on the rights of the individual There are, to be sure, no absolute objective standards of what constitutes the "welfare of the community" In a people of diverse economic interests, diverse education, diverse religious beliefs, and diverse racial backgrounds, there will be wide differences of opinion as to what sort of measures will "improve the welfare of the community." We find laws proposed to prohibit the sale of intoxicating liquors, to prevent the use of animals in experimental medicine and biology, to prohibit railroad trains from running on Sunday, and to prohibit teaching that the earth is round The sponsors of these laws all claim (and no doubt most of them sincerely believe) that they are in the interests of human welfare. In the absence of absolute standards, our legislature and judges operate on the theory that the people themselves are the best judges of what is for their own good, so that, when a sufficiently large majority is in favor of a measure, it is adopted and sustained by the courts Thus we are dependent for our regulations upon the collective intelligence, or the collective ignorance, of the community

Public Ownership

Ownership and/or operation of productive units to provide certain services for the people represents a third type of governmental economic activity Here the question at issue is not only the matter of public welfare, but also the question of whether public welfare will be better served by public or private provision of the service in question In some cases there is little doubt public health, for example, is undoubtedly, better protected in large cities by the municipal collection and disposal of garbage without charge than if the people were left to hire their own garbagemen We could, of course, simply pass laws regarding the disposal of waste matter, but the cost of enforcing them (in the absence of free garbage collection) might be equal to or greater than the cost of free collection Certainly the degree of sanitation achieved would be apt to be much lower In connection with the rendering of some other services, light and power for example, the question of the relative efficiency (and other benefits) of public and private operation is much more in dispute

Establishment of Monopolies

A fourth economic function of government is the establishment of monopolies It is somewhat startling to reflect that a supposedly anti-monopolistic government establishes hundreds of thousands of monopolies for every one that it breaks There are, of course, many kinds of monopolies First, there are those that are called "natural monopolies," which may consist of the ownership of resources sharply limited by nature as, for example, a case in which there is only one single deposit of a certain valuable ore The term has also been used to describe a situation in which the public is better served by allowing a single company to perform the service, rather than to allow competition in the field For example, the streets of a large city would be a hopeless mass of confusion if anyone who wished to do so were allowed to lay street car tracks and run a street car line Equally obvious difficulties exist in the competitive provision of electric power, gas, and water services In the case of telephone service, there is clear advantage to the customer if the service is provided by a monopoly he requires only one telephone in order to be able to talk to everyone else who subscribes to the same service, instead of two or three different telephones which would be necessary if the service were provided by two or three different companies, each with its own group of subscribers In the services we have mentioned above, there is also a vast saving in cost, both to the companies themselves and to society in general, when the service is provided by a monopoly rather than by competitive companies with needless duplication of transmission lines, plant and equipment

In the field of "natural monopolies," an appropriate governmental department grants the exclusive right to one company to render the service The legal instrument which grants this right is called variously a license, a franchise, or a charter The attempt is then made to obtain the benefits of lower cost of monopoly operation for the people, in the form of lower prices, rather than to allow the monopoly to absorb them as profits This gives rise to the problem of rate regulation which will be considered in subsequent chapters (Regardless of whether the lowest possible rates are achieved, we should not ignore the saving in real wealth for society which these forms of monopoly give by avoiding the waste of labor and resources resulting from the needless duplication of plant by competition)

By the issuance of patents, government also creates monopolies For a limited period of years, the inventor who receives a patent is given an exclusive right to use or dispose of his invention on the theory that the prospect of making a monopoly profit will act as a stimulus for invention Undoubtedly it does so for many people It should be noted, however, that physicians, surgeons, and many other research workers in the fields of pure science, ordinarily do not patent their discoveries but publish them instead for the world's benefit These men seem to feel amply repaid simply by the respect and admiration of their fellow workers

Copyrights for books and songs come under much the same general economic classification as patent monopolies Of course we had both authors and composers before we had copyright laws The ingratitude of public memory which has remembered the songs but forgotten their composers has ill-rewarded the creators of the folk ballads Regardless of the motives of the creative workers, there is one argument that may be advanced in favor of the monopolies which are granted in books, songs, plays, and inventions If it were not for the opportunity of sharing in monopoly profits, it is doubtful if businessmen would be as willing as they are today to assume the risk of placing a new product on the market While we can all think of many of these kinds of products which we would prefer not to be marketed (perhaps this book is one of them), we can have no assurance that the absence of monopoly profits would eliminate them

Trade-marks registered by the government are another form of government-sponsored monopoly The argument usually advanced in favor of government protection of trade-marks is that it allows the customer to identify the goods and to be sure that substitution is not being practiced on him This is only partially true All that trade-mark registration does is to assure that the goods are being sold by the owner of the trade-mark A firm that builds up good will for its brand of coffee by starting out with No 1 Santos Coffee may gradually reduce the grade to No 4 or 5, while still retaining the same brand name Moreover, any owner of a trade-mark who has built up a reputation for the quality of his product, may sell the trade-mark, and the buyer may then sell whatever grade of product he pleases under the old brand name Clearly then, a trade-mark protects the consumer only so long as its owner is interested in maintaining the quality of his product As soon as either the original owner or a second owner of the trade-mark attempts to make a quick profit by deteriorating the product, the brand name becomes a snare and a delusion instead of a protection to the consumer Even where quality is maintained, blind adherence to trade-marks by consumers tends to render price competition ineffective and so prevents the consumers from obtaining the most for their money There is no objection to maintaining the identity of goods by trade-mark It may be argued that the manufacturer who consistently maintains a high standard for his product should be allowed to benefit somewhat from the resultant good will But if what is desired is protection for the consumer, trade-marks are not enough The establishment of Federal grades, plus the requirement that these grades be printed on the label *and in the advertising,* plus periodic inspection to prevent false statements, would be a far better protection to the consumer As consumers are given objective standards by which to judge the quality of products, price competition becomes more effective and competitive increases of selling costs lose their attractiveness The benefit of government protection of trade-marks accrues primarily and certainly to the owner alone Such benefit as accrues to the consumer is incidental and is dependent upon the desire of the trade-mark owner to maintain his "good will" over a long period of time

We have seen (1) that the government provides definitions and regulations for the conduct of economic activity, (2) that it engages in the provision of some economic services directly, and (3) that it grants monopolies to encourage the performance of some other kinds of services We have by no means, however, exhausted all the economic implications of governmental activity Many whole books have been written on the subject and many more will be written in the future But a start has been made in developing a basis for consideration of the various possible positions the government may take in respect to the specific problems that we shall discuss in the following chapters

CHAPTER III

Forms of Business Ownership Organization

THE VARIOUS forms that business ownership may take are prescribed by law, and a large body of legal doctrine has grown up around each of these forms. At first sight it might appear that we are dealing with a purely legal question. However, the legal advantages and disadvantages, the privileges and immunities which are associated with each form of the business unit carry with them certain economic consequences which make the form of business ownership organization a question of economic importance. Since the very definition of each form of business ownership organization is a legal question, we shall have to pay some attention to their legal aspects, although our main attention will be directed to the economic problems involved in each form of the business unit.

The Single Proprietorship

The single proprietorship may best be explained as a one-man business organization. This does not mean that the proprietor will have no employees, but it does mean that he is the sole owner of the business. All of the business property belongs to him, and he alone is responsible for all its debts; he will receive all the profits which are made from this business and will suffer all of its losses.

When an individual is operating a business under the single proprietorship form, the law does not distinguish between the individual and his business Any careful individual will keep two sets of accounts, one for his personal income and expenditures and another for the income and expenditures of his business In this way he will be better able to judge whether he is operating his business properly or not The law, however, makes no such distinction, in its eyes the business firm and its owner are one and the same person All of his personal fortune may be levied upon to satisfy the debts of the business, and any of his business assets may be seized to cover unpaid personal debts

The single proprietorship has many distinct advantages Whatever profits there are go entirely to the owner and need not be shared with others Since there is only one individual to make decisions, these can be made quickly and can follow a consistent individual policy Since the owner is free to discharge any employee, he can rid himself of dishonest and incompetent individuals much more readily than would be the case if these individuals happened to be partners in a partnership or stockholders in a corporation Since the owner's entire personal fortune is at stake, he has the strongest motives to watch the business carefully and to run it as efficiently as possible In many retail trades, people seem to derive a certain satisfaction in dealing directly with the owner of the business so that this form of ownership organization is peculiarly well-adapted to small retail establishments An individual proprietorship can be started with a minimum of legal expenditures, there is no corporation charter to be procured, no incorporation fees to be paid, and the firm is free from taxes levied against corporations

There are, however, certain limitations and disadvantages attached to the individual proprietorship The capital of the firm will be limited to the individual's personal fortune plus the amount he is able to borrow on his personal credit There will be no one except hired employees to whom the owner can entrust the running of his business during his absence The success of the individual proprietorship depends largely on the ability of the owner to master all branches of business management He must be both a shrewd buyer and a capable salesman, he must be somewhat of an accountant, and he must be familiar with the technical details of whatever business the firm is engaged in He must be a competent executive to direct the employees It is true that individuals may be hired to take over some of these functions, the ability of hired managerial employees, however, will depend to a considerable extent on the amount of salary the firm is capable of offering to attract them The amount of such salaries will depend upon the size of the firm which, in turn, depends upon the amount of capital the individual is capable of raising One great disadvantage of the individual proprietorship is that a business failure will involve the owner's entire personal fortune He can, of course, place his home and certain other personal property in his wife's name, but if his wife should then happen to desert him, he would have no means at all of recovering this property The individually owned firm also lacks continuity, in case the owner dies or decides to retire, it may be impossible to sell the firm for anything near the amount it has previously been worth as a going concern

Partnership[1]

The simple business partnership consists of two or more individuals who are joint owners and joint proprietors of the business There is a partnership agreement which specifies the amount each partner will contribute to the business, and fixes his share of the ownership and his share in the profits This agreement may be verbal, but it usually is and should be written The different partners may contribute both cash and services to the business, or some may contribute merely cash and others their services, or cash and services may be contributed in varying proportions by the different partners The partnership agreement usually recognizes differences in value of the contributions of the various partners by providing for corresponding proportions in the share of the profits and the assets of the business The partnership agreement will usually stipulate also the proportion in which each partner is to bear the losses in the event of failure In the event of bankruptcy, the courts will endeavor to carry out such terms as far as possible However, should any partner be unable to meet his share of the losses, the courts will hold each and every other partner liable up to the full amount of his personal fortune

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[1] In discussing this and other forms of business ownership, the legal aspects given are those common to most states The reader should consult his own state laws for features that may be peculiar to his state

Legally, each partner is responsible for, and will be bound by, any act committed by any other partner in the firm's name, regardless of any private understanding among the partners themselves For example, two partners may have an agreement that one is to do the buying and the other the selling for the firm, nevertheless, should the buying partner decide to go out and sell goods much below cost, the other partner would be held responsible for delivery of the goods Likewise, should the salesman partner have a notion to buy a particular lot of goods at absurdly high prices, the other partner would be held equally liable for accepting and paying for the goods Debts contracted by any partner in the firm's name are a debt against all the partners Should one of the partners borrow money in the firm's name and then keep it himself, the other partners might bring suit against him for fraud, but *regardless of whether they collected anything from him or not,* they would still have to pay the debt

At first sight these provisions may seem somewhat harsh, but they are based on a sound principle It would be almost impossible to do business with a partnership if all partners had to be consulted every time anything was to be sold to the firm or bought from it In most minor matters it would likewise be a needless waste of the partners' time Consequently, it is a practical necessity that each partner be free to negotiate for the firm To protect the public, it is then necessary to make each responsible for the other's actions It is then up to the partners to watch each other to see that they do not commit acts which are undesirable for the business In some respects, one should exercise more care in choosing a business partner than in choosing a wife

The Limited Partnership

In some states, limited partnerships are allowed Such a partnership must have one or more general partners and may have one or more limited partners The status of the general partners is the same as that outlined above under the simple partnership The limited partner is allowed to have the amount of his possible loss limited to his share in the business, but he is subject to certain restrictions (1) He may contribute cash only and not services to the business, (2) his name must not appear in the firm's name, (3) he must not attempt to do business in the firm's name If he violates any of these provisions, he loses his status as a limited partner and automatically becomes a general partner The reason for these provisions is to avoid having people deceived into thinking that a limited partner is a general partner For instance, without these provisions, if I could persuade John D Rockefeller, Jr to invest $5,000 as a limited partner with me and we then adopted the firm name "Rockefeller & Meyers," I could probably obtain unlimited loans from any bank, or if Rockefeller went out to buy goods for the firm, we could obtain practically unlimited credit On the other hand, if these people knew that he was only a limited partner, the firm's credit would be limited to $5,000 plus their best estimate of my own meager ability to repay possible losses.

Advantages of the Partnership

The partnership can ordinarily obtain more capital than the individual firm, both through taking in more partners who will contribute capital and through the increased willingness of the banks to lend more to a group of individuals than to a single individual. It can take in partners possessed of different skills to manage the various special aspects of the business, and since these partners will share in profits or losses, they may possibly devote more conscientious effort to their tasks than they would as hired employees, either of a single proprietorship or of a corporation. If there is any truth in the adage that "two heads are better than one," it will be applicable here. In the temporary absence of any of the partners, the business may still be left in responsible hands. In dealing with the public, the partnership will still possess much of the character of a "personal business" which is characteristic of the single proprietorship. The partnership is likewise free from legal requirements and taxes imposed on corporations as such.

Disadvantages of the Partnership

Although superior to the individual proprietorship in raising capital, the partnership is still somewhat sharply limited in this respect. In spite of conspicuous exceptions (such as J. P. Morgan & Co.), the capital of the average partnership will be found to be small. In general, it is necessary to take in more partners in order to raise more capital. As the business expands, it may be increasingly difficult to find people willing to invest money in the firm who will also be desirable partners in other respects Another possible serious disadvantage is disagreements among the partners on matters of business policy Unless these can be settled amicably, the partnership will have to dissolve No partner can sell or transfer his holdings in the firm without the consent of the other partners Unless he can find a new partner satisfactory to them, he will either have to buy out the other partners, sell out to them at whatever price they will give, or force a dissolution of the partnership If any partner dies, his heirs will be under the same disadvantage The surviving partners will likewise be under a handicap, if the share of the deceased is not willed to someone whom they consider a satisfactory partner, they must either be willing to buy out the heir or face dissolution of the partnership The liability of the partners for each other's acts and the unlimited liability of all general partners is also a disadvantage

The Joint-Stock Company

The joint-stock company is a kind of transition type of business ownership organization halfway between the partnership and the corporation possessing many of the features of both types The owners are under the same degree of full liability as in the general partnership Instead of the partnership agreement, ownership is represented by transferable shares of stock similar to those of a corporation, and management is centered in a board of directors elected by the stockholders The joint-stock company possesses practically all of the advantages of the corporation except limited liability It is free from the disadvantage of acquiring and conforming to a corporation charter, and it is not subject to corporation taxes levied as such However, the unlimited liability of stockholders has appeared to be such a disadvantage in selling stock that the joint-stock company has not met with much favor in this country. It is far more common in England

The Corporation

A corporation is an artificial person, created by law, for the purpose of accomplishing some object The first corporations were not business organizations but were religious, fraternal, benevolent, or educational institutions founded by a royal charter which conferred certain privileges and immunities upon them The older English Universities and the Medieval Guilds were among the first corporations

The business corporation is an adaptation of this form for business purposes A group of persons will apply to the state to grant it a charter for the purpose of doing business as a corporation If the charter is granted, a corporation is created which may do business in the firm's name, it may sue and be sued in the firm's name, exactly as an individual person, it may own property and may borrow and owe money Although the stockholders own the corporation, they are not held liable individually for the actions of the corporation as it is considered to be a separate person Ordinarily, the possible loss of the stockholder is limited to the amount which he paid for his shares In the case of banking corporations, in some states the stockholder may be held liable for double the amount of the face value of the shares which he holds

Some states have had the idea that the corporation charter might be used as a means of exercising some sort of control over the corporation The charter would state rather rigid limits as to the kind of acts the firm might perform, and general laws were passed regulating their acts In practice, the diversity of state laws and the laxness or cupidity of some states have largely defeated this purpose Under the interstate commerce clause of the Constitution, a corporation created by one state is able to do business in any other state, consequently, new corporations have taken out their charters in those states which are most lenient After the United States

Steel Corporation was granted a charter by the State of Delaware which allowed it to "engage in any kind of business in any part of the world," there was a rush to incorporate under the laws of that state and the state has since become notorious as a "corporation mill" The state has received so much revenue from a small corporation tax on numbers of business firms whose real centers of business are all over the country, that its own residents are practically tax-free Technically, the corporation is supposed to have its main office in Delaware, but this is evaded by setting up a "dummy" office The doors of Wilmington office buildings are plastered with the names of hundreds of large business firms whose principal place of actual business is New York, Chicago, or other large cities in other states Some other states have attempted to set themselves up in the business of "selling corporation charters," and as a result, the remaining states practically have had to abandon their efforts to regulate corporations through their charters It has been proposed from time to time that corporations, particularly those doing interstate business, be required to incorporate under Federal rather than state laws, but as yet no action has been taken on this matter

The Simple Business Trust

The word "trust" in popular speech usually means combination or monopoly This arose from the fact that some of the first large business combinations to be prosecuted in the courts had adopted the trust form of organization More accurately, the word "trust" refers to a form of business ownership organization which need not have any large-scale or monopoly aspects The simple business trust, sometimes called the Massachusetts trust because it received its greatest development under the laws of that state, is a form of organization under which the title to business property is placed in the hands of a board of trustees who manage the business in the interests of the former owners, who are then called the beneficiaries of the trust (This is in contrast to trusts for the purpose of safeguarding inheritances in which the beneficiaries are usually third parties) The deed of trust which transfers the property will specify the powers and duties of the trustees Usually equity in the trust is evidenced by trust certificates which may be transferred like shares in a corporation, to which they are quite similar in all respects except that of voting The deed of trust often specifies that no liability shall attach to shareholders or trustees

For most purposes the trust would appear to be at least equal to, and in some respects superior to, the corporation Trustees are ordinarily possessed of greater freedom to act for the business than are directors of a corporation To the extent that trustees are held more responsible for their actions than are directors, this may be a greater protection for the minority shareholder than his vote in a corporate organization The main reason why the trust form is not more widely used is probably due to the stigma attached to the name in the various "Anti-Trust" agitations

Co-Operative Organizations

Co-operative organizations are often formed by consumers for the purpose of buying and by farmers for the purpose of marketing their products Some few manufacturing co-operatives have been formed by workmen, but these have had little success The co-operative is usually organized as a corporation to do business under a corporate name, but it has certain features distinct from the ordinary business corporation. (1) In the true co-operative, each member has one vote regardless of the number of shares that he holds (2) After a low fixed dividend (really an interest payment) is made on each share, further profits are shared on a "patronage" basis, that is, each member receives dividends in the proportion which his purchases or sales through the co-operative bear to the total purchases or sales The question of the field and function of the co-operative is a separate subject which we will not discuss here

Business Ownership and Business Government

The various forms of business ownership organization are really forms of business self-government and may be compared with various forms of political government [2] The single proprietorship is an absolute monarchy, the partnership is an oligarchy, the corporation is a republic (with voting based upon a property qualification), the trust may be compared to the mandate, the co-operative is a democratic republic

Within the corporation, the analogy to political government may be carried even further The corporation charter is its constitution, its by-laws correspond to legislative enactments, the board of directors is an administrative body empowered to carry out the provisions of the charter and by-laws and allowed to pass some administrative rulings of its own The active control of the corporation by a small group of stockholders is somewhat similar to that exercised by the political bosses of a dominant party when the opposition is negligible

Types of Corporate Securities

Corporate securities are of two general classes each of which has many subclassifications *stocks,* which represent ownership in the corporation, and *bonds,* which represent claims of funded debt against the corporation We shall be able to discuss here only the most important aspects of the principal types of stocks and bonds The reader who wishes further information on this subject should consult a good text on corporation finance

Common stock represents the ownership and, unless the interest on bonds or the dividends on preferred stock are in default, usually represents the voting control of the corporation

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[2] This analogy is a teaching device used by Professor J M Shortliffe of Colgate University in his classes I have not seen it developed so extensively elsewhere

Common stock is issued in shares. The percentage of the total number of shares held by any individual indicates his proportionate share in the total of dividends and assets accruing to the common stockholders in general. Evidence of this ownership is given in the form of a stock certificate which states the number of shares that the holder owns, dividends on which may be paid only after all interest on bonds and all preferred dividends have been paid. In the event of dissolution of the company, the common stockholders receive whatever is left after all debts, bonds and other prior claims have been paid. Unless otherwise stated, after interest and preferred dividends have been paid there is no limit to the dividends which may be paid on common stock except the earnings of the company and the discretion of the board of directors. The owners of common stock thus stand the greatest chances of both profit and loss. Since all other claims must be paid first, common stock is often called the most risky form of investment. This statement holds true, however, only as among different classes of securities *in the same company*. The common stock of a prosperous company may easily be a safer investment than the bonds of a corporation which is suffering reverses.

Classified common stock is sometimes issued. In such cases there will be two or more classes, usually called Class "A" and Class "B," only one of which has voting power. (There is no uniformity as to which class, "A" or "B," receives the voting power.) There is no excuse for the issue of this type of stock. It is purely and simply a trick device to allow a few individuals to gain control of a corporation without being required to invest as great an amount of money as would be required to purchase majority control of unclassified common stock. The holders of the non-voting stock are deprived of the power to protect themselves through voting and are not guaranteed any fixed dividends.

Preferred stock carries the provision that a certain fixed dividend (a specified number of dollars on stock with no par value, or a specified per cent of par for stocks with par value) will be paid on the stock before any dividends are paid to common stockholders It may be either *cumulative* or *noncumulative* preferred stock On cumulative preferred stock, this year's specified dividend, *plus unpaid dividends for all past years,* must be paid before any dividends are paid on the common stock On noncumulative preferred, only the specified dividend for *any one year* need be paid before the dividends are paid on the common stock Noncumulative stock is hardly worthy of the name "preferred" since it is so easy for the stockholders to be cheated out of dividends For example, suppose that a corporation has $1,000,000 in common stock and $1,000,000 in 6 per cent noncumulative preferred stock The first year it earns, let us say, $120,000, a sum which is enough to pay a 6 per cent dividend on both preferred and common stock The directors, however, say that it is advisable to set up a reserve, invest the earnings in government bonds or other earning assets, and vote to pay no dividends on either preferred or common stock The following year, if the company again earns $120,000, the directors may say that it is now well-established and needs no reserve, so they sell the government bonds, or other assets, and this, plus the current year's earnings, makes a fund out of which they pay *only this year's* dividend of 6 per cent on the noncumulative preferred stock and pay the remaining sum as an 18 per cent dividend on the common stock Since the directors usually hold the majority of the common stock and usually own very little preferred stock (usually none if it is noncumulative), it will be to their interest to juggle the earnings from one year to another in this way There is practically no legal remedy for the preferred stockholders in the situation we have outlined above, crude as it is, and there are still more subtle ways of concealing earnings from one year to the next The only sure safeguard against this particular form of cheating is *not to buy preferred stock unless it is cumulative*

The preferred stock of different companies may carry many different provisions, either to safeguard further the preferred stockholders, or to provide for their further participation in large earnings when they occur To be certain of exactly what these provisions are in the case of a particular stock, the corporation's charter should be consulted[3] One rather common provision is that, in the event of dissolution of the company, a certain fixed sum be paid to the preferred stockholders before the common stockholders receive anything When this provision is made a stock is said to be *preferred as to assets*

A provision is sometimes found that, after the preferred stockholders have been paid their guaranteed dividend, and after the common stockholders have been paid an equal percentage, further earnings will be divided equally between the two groups Where this provision is in effect it removes some of the disadvantages from noncumulative preferred stock

Another provision occasionally made is that, whenever preferred dividends are unpaid, preferred stockholders may vote their stock along with common stockholders at meetings of the corporation This affords some measure of protection to the preferred stockholders but it is dependent upon the ability and willingness of this group to organize for their own protection In the case of a stock which is widely scattered in small holdings, this may be difficult It is not unknown for stockholders (either preferred or common) to surrender their proxies to a "stockholder's protective committee" which really represents the existing management of the company

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[3] Or in many cases, the information may be obtained from *Moody's Manual* or *Poor's Manual*.

Bonds represent the long-term funded debt of a corporation Since no one individual, or even one bank or insurance company, may be willing or able to loan millions of dollars to a single corporation, bonds constitute a way of "cutting the debt into small pieces" that may be disposed of more readily This is an advantage even to the large bank or insurance company that might be willing to buy a whole bond issue In the event that it needs money later on, a claim divided in the form of bonds will be more readily salable than the claim of a large debt in a single lump sum Bonds are usually issued in denominations of $100 or $1,000 although, in order to attract the small investor, bonds of $50, $20, and even as low as $10 are sometimes found Bonds may be classified according to the nature of the claim of debt of which they are small pieces

Mortgage bonds are bonds that are secured by a mortgage upon all or some part of the physical property of a corporation They may be either claims against the real property of the corporation, in which case they are *real estate mortgage bonds,* or they may be secured by a mortgage on movable property, in which case they are called *chattel mortgage bonds* (for example, bonds secured by a mortgage on railroad freight cars) There are first, second, and even third and fourth mortgage bonds in some corporations In such cases, when foreclosure or bankruptcy takes place, the first mortgage bonds must be paid in full before the second, the second before the third mortgage bonds, and so on Note well that the mere presence of the word "first" in the title of a bond issue does not necessarily mean that it is an absolutely first claim on the assets of the corporation We often find "first refunding," "first convertible," and "first debenture" bonds issued by a company which already has two or three prior mortgage bond issues outstanding

Debenture bonds are simply a claim against the general assets of a company *that are not otherwise specifically pledged* In case there are no other bond issues of the company outstanding, debenture bonds are just as good as mortgage bonds If we call mortgage bonds "pieces of a mortgage," we may call debenture bonds "pieces of a long-term promissory note" If there are large issues of mortgage bonds outstanding, debenture bonds in the same company may constitute an extremely risky junior security Even where no other issues are outstanding, *unless it is specifically provided against,* the company may issue mortgage bonds on property against which debenture bonds have previously been the sole claim, thus impairing the value and the possibility of redemption of the debenture bonds

Value of Bonds

In the event that interest payments are not made when they fall due, or that the principal is not repaid when the bond matures, bondholders may foreclose or bring an action in bankruptcy against the corporation The value of a bond will then depend upon the proportion of the company's assets which it represents *when such assets are sold at a forced sale.* (Such value will not exceed the face value of the bond, since any surplus over this amount goes to the stockholders) Since the "secondhand" value of capital equipment at a forced sale is ordinarily much less than its original value, it follows that no bond issue is "secured as to principal" unless it is made in a considerably smaller amount than the original purchase price of the assets against which it is a claim The more specialized the capital assets against which bonds are issued, the more will their value be dependent upon the corporation as a "going concern" Consequently, unless bondholders are willing and able to take over a business and operate it for themselves, their right of foreclosure is useful only as a threat to the management and is by no means a guarantee of the return of the invested principal

Unless adequate allowance is made for maintenance, the depreciation of plant and equipment may impair the value upon which a bond issue rests It is also to the interest of the bondholder to see that there is provision for a sinking fund which will repay the bonds at maturity Otherwise, particularly in the case of long-term bonds, the company's excess earnings may be paid out in high dividends, leaving nothing but the possibility of borrowing again as a means of repaying the bond issue

In addition to the circumstances peculiar to the individual company, there are many general market factors which will affect the value of bonds When the market rate of interest on new capital investment declines, old bond issues will tend to rise in value[4] In extreme inflation, bonds, because their principal and interest is payable as a fixed number of dollars, will lose their attractiveness as an investment Mild inflation, after a period of depression, may raise the prices of low-grade bonds to the extent that it increases the earnings of the various companies which have issued them Railroads and public utilities will be apt to profit less from this source than will industrial corporations since their rates, being fixed by regulation, are not apt to rise rapidly, and increases in traffic volume, due to inflation, may be offset by higher operating expenses

Abuses of the Corporate Form of Organization

We have already mentioned some abuses of corporations Before going further into specific abuses, we must raise the question "Who controls the corporation?" Whoever controls a corporation is responsible for its abuses (seldom legally responsible, unfortunately), even if he does not perpetrate them nor profit from them, he is in a position to prevent them The corporation was compared to a little business republic, with the stockholders as electors and the directors as representatives In such a business government, as well as in political government, there are political parties by which the majority may exploit the minority Political bosses exercise control through controlling the active minority in the majority party, and there are "blocs" Finally we have what corresponds to lobbyists representing outside interests that may bring pressure to bear on the corporation In actual practice most stockholders seldom take an active and intelligent interest in the affairs of the corporation If they vote at all, it is usually simply to approve matters (including the proposal of new directors) submitted to them by the board of directors

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[4] See page 439

The board of directors may be the controlling element, but it is seldom, particularly where the board is large, that the board *as a whole* exercises active control Many directors may be "dummies" elected to the board to do someone's bidding Many may be "honorary" directors used as "window dressing" in order to have imposing financial names on the board The failure of many directors even to attend meetings long ago gave rise to the custom of giving each a twenty-dollar gold piece in order to get a quorum In practice it will be found that most often the board simply gives "rubber stamp" approval to measures originating with one of the following interests (1) a single director, or a small group, who may or may not be large stockholders, (2) a large stockholder who may or may not be a director, (3) the active business management of the corporation (President or General Manager), (4) a bank or banking group which is lending to the corporation, (5) the principal buyer of the corporation's product, (6) the principal supplier of raw materials, (7) the corporation's lawyer This list might be extended considerably further[5] Any of these "pressure interests" may be represented on the board of directors but this is not necessary so long as they have one, or a small group, of the directors who will actively present their measures and a complacent majority of the board who will follow the leader

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[5] Dr Robert Gordon has made an extensive study of this question and the results will soon be published

Excessive salaries voted to officers and executives of a corporation are one of the most common abuses and one that is least subject to legal control It may appear that it would make little difference to a corporate officer whether he received his earning as salary or dividends, nevertheless, if that part of his salary which is excessive were allowed to go into the general earnings of the company where it belongs, it would be shared *by the minority stockholders* As a salary, it goes to him alone In spite of the fact that tremendous salaries are continually reported for executives of large corporations, this evil of excessive salaries is apt to work more hardship upon the stockholders of small corporations A salary of $50,000 for the president of a small corporation might absorb nearly all the earnings of the business, whereas a salary of $100,000 for the president of a corporation which has two million shares outstanding would amount to but 5 cents per share if the entire amount were distributed and the executive paid nothing Since it is extremely difficult, if not impossible, to determine what an executive actually is worth to a business, it is hard to say whether any given salary is excessive and, if so, by how much Quite likely the salary should be in some sort of rough ratio to the net earnings of the company Rather than draft a general law to this effect, however, the author would prefer to be left free to criticize the man who would draft it

Juggling of earnings from one corporation to another is a favorite device by which stockholders may be swindled Where an individual or group has a major interest in one corporation and a minor but actively controlling interest in another, opportunity for unwarranted profit is offered.

For example, if the corporation in which they have large stock holdings is selling products to the other corporation, prices will be fixed very high If their major interest is in the buying corporation, prices will be set low. Even though this practice is illegal, it is often extremely difficult to prove that it has taken place, particularly where the product is one that is not sold every day on the open market For example, what is the market price for automobile bodies in lots of 100,000, or what is the fair value of 250,000 horsepower generators? Unless definite proof of overpricing or underpricing can be established, the courts will naturally assume that those doing the buying or selling were acting in good faith

Misuse of "inside information" for stock market purposes by officers of a corporation is another common abuse Some officers of a company may be in a position to know the way its affairs are going before this information becomes available to the general public and they may then profit by buying or selling the company's stock This abuse is far more serious when officers are selling in advance of bad news than when they are buying on the basis of advance information of good news When officers and directors unload their large holdings, they tend to depress the price of the stock seriously before the small stockholder has even a chance to sell If it starts to become known in the market that officers are unloading, a panic decline may drive the price of the stock temporarily far below even the price which is justified by the bad news It requires rather a high type of ethics on the part of officers not to unload and avoid losses when they know that the price of a stock will go down, but there is certainly no excuse for their selling short and making a profit under such circumstances.

Falsification of earnings for stock market purposes is also fairly easy to engineer Overly generous markdowns of the company's assets for depreciation and obsolescence and the writing off of perfectly collectible items as "bad debts" can make a very large share of the earnings apparently disappear When the price of the company's stock drops after the publication of this poor earnings report, the "insiders" can buy it at a bargain In a subsequent earnings period the process can be reversed and the stock sold out at a profit

Purchase of assets from an officer of the corporation, either openly or through a "dummy" intermediary is fraught with many possibilities of abuse For example, an officer knows that the company is going to need a certain piece of real estate, so he buys it for himself and then resells it to the corporation at a quick profit There are many other variants of the scheme

Watered stock is the issuance of stock the original price of which exceeds the value of the assets of the corporation This may be the result of giving a large block of stock to the owner of a patent right (not necessarily the inventor) or of giving large blocks of stock to the organizer of the corporation, or to the underwriters who sell the securities, for their "services," the value of the stock being more than the services or the patent are worth It is not even necessary that stock be given An excessive cash payment for services would have the same effect

One way in which the small investor can protect himself against this particular practice is *never to buy the stock of a new company or a new issue of stock by an old company until it has been on the market for at least a year or more* In spite of what the glib salesman tells you, this practice will not prevent you from "getting in on the ground floor" A study of the price history of the stocks of today's best and soundest companies will show that almost invariably the stock sold for much lower than its original issue price within two years after the original issue This practice will also save you from buying the stock of many companies which are either ill-conceived or outright fraudulent and which "fold up" within a year or two While he is marketing a new issue of stock, an underwriter, who has guaranteed to the corporation that he will sell the stock at a certain price, will buy back every share that the public offers for sale in order to protect the price of the stock which he still holds unsold As soon as the issue is completely sold out, this support will be withdrawn and the stock must seek its own level on the market If then the company is slow in getting established (as it is very naturally apt to be) and the first year's earnings are disappointing, those who bought in the hope of a quick profit will become tired of waiting and will unload their holdings Then, and not before then, if the long-time prospects still look good, is the real time to "get in on the ground floor"

The list of abuses of the corporate form of business ownership which we have given could be almost indefinitely extended Should, therefore, the corporate form be abolished? No It would be impossible to organize large-scale businesses without it and in many lines we must have large-scale business organization if we are to have the product at any kind of reasonable price The answer lies in attempting to remedy the abuses as far as possible The Securities and Exchange Commission is a step in the right direction If we can maintain the present high type of its personnel, its powers should be still further extended Regardless of how good our laws or how well they are enforced, however, the investor will still find it necessary to exercise self-protection and judgment.

CHAPTER IV

Some Fundamental Economic Concepts

WE HAVE already said that economics deals with human wants and their satisfaction The means by which human wants are satisfied are called *goods*

A good is anything that satisfies a human want The bread that I eat, the shoes that I wear, the house that I live in are all goods It is not necessary that I in particular should want an article for it to be a good I do not happen to care for artichokes, but as long as someone does, they are a good Two conditions are necessary for the existence of a good a human want, and a means that will satisfy that want ✓

Goods may be divided into two main classes, *free* goods and *economic* goods *Free goods are those so plentifully supplied by nature that human effort is not required to obtain them Economic goods are those that are so scarce relative to human wants that human effort is required to obtain them* It will be obvious to the reader that whether a good falls in the classification of free goods or economic goods will depend upon circumstances In certain thinly populated tropical islands untouched by navigation, bananas might be considered a free good But when we consider the effort necessary to gather them and transport them, the bananas in New York City are an economic good Probably the only goods which are free goods under nearly all circumstances are fresh air and sunshine Even here, if we stop to consider air conditioning and ultraviolet-ray glass, we may raise some questions If the reader wishes to test his grasp of this concept, let him ask himself whether free samples of corn flakes, free soup in soup kitchens, and free public libraries are free goods or economic goods, and why

A service is any nonmaterial good The acts of the cook who prepares my food, of the boy who mows my lawn, and of the orchestra which plays for my enjoyment are services For many purposes, services need not be distinguished from other goods, but since we shall later have to make certain distinctions between the way in which the wages of free persons and the prices of goods are determined, we choose to draw this distinction now

Utility

Utility is the quality or capacity of a good which enables it to satisfy a human want. Any good that is capable of satisfying my wants may be said to possess utility for me It must be carefully noted that the good itself is not a utility My desk itself is not a utility It is a good, but its ability to serve as a support on which to write, as a place to hold my books, and whatever beauty of design it may have which pleases my eye constitute the qualities which give it utility for me

The economic concept of utility carries with it no moral, esthetic, physiological, or any other kind of judgments or standards except those existing in the mind of the individual who desires the article Utility is not synonymous with usefulness when we try to classify goods as being useful or harmful according to some abstract standards Thus cocaine possesses utility for the dope fiend Hideous paintings possess utility for those deficient enough in artistic taste to enjoy them. Poison possesses utility for the person who wants to commit suicide As long as anything will satisfy any human want, it possesses utility The economist, as an economist, can pass no judgment upon the merits of these wants. If all the paper in the country is used up in printing cheap magazines instead of great literature, this may be a cultural loss, but it cannot be considered an economic loss so long as the wants of the people are better satisfied by material which the English professor would say "panders to a degraded taste"

There are really four main kinds of utility[1] *form* utility, *place* utility, *time* utility, and *ownership* utility Form utility consists of the *physical form* or *structure* or of the *chemical composition* of a good which renders it capable of satisfying a human want Thus the shoe manufacturer adds form utility to leather when he shapes it into shoes The baker adds form utility to flour, salt, and yeast when he mixes and bakes them into bread The florist adds form utility to a seed when he helps it grow into a flower

Place utility, as its name implies, is the *presence* of a good in a *place* where it is able to satisfy a human want Thus, the steamship companies, the railroads, and the retail stores are adding place utility to bananas by bringing them from the tropics and putting them in a place where one can buy them if one so desires

Time utility is the *availability* of goods at a *time* when they are needed to satisfy human wants Thus, the cold storage warehouse adds time utility to butter by keeping it from a time when it is overplentiful to a time when it is more needed The retail store is adding time utility as well as place utility to goods by having them on its shelves so that one may obtain them immediately when he wants them instead of having to order them from the factory and wait for delivery

Ownership utility consists in the *possession* of goods by those who desire them Thus, the real estate agent adds ownership utility to houses by transferring their ownership from those who wish to get rid of them to those who wish to obtain them

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[1] This classification of kinds of utility is not necessary, nor is it fully inclusive or mutually exclusive It may serve, however, to aid in understanding the concept

Production

Production is the addition of utilities to goods or the rendering of services possessing utility It may be readily seen that according to this definition all of the activities we have mentioned to illustrate the various kinds of utility are *productive* activities Early economists used to consider only one kind of utility, form utility, when they spoke of production Consequently they were forced into the untenable position of classing many kinds of human activity as *unproductive,* although at the same time they were forced to recognize these activities as useful and even necessary The reader will realize, after careful consideration, that there are very few kinds of human employment which could be classed as unproductive under our definition

Karl Marx and his followers were fond of hurling the stigma of "unproductive labor" at a great many types of human activity This was because Marxists regarded as productive only those activities which led to the physical "creation" of physical goods When we remember that the only reason we desire goods is for the utility which they are capable of giving, it must be obvious that any activity which increases utility must be productive If I happen to desire to hear violin music more than I want to wear a new shirt, the efforts of Kreisler possess more utility for me and hence are more productive than those of Sadie the shirtmaker

However, merely by saying that a certain kind of work is *productive* we do not necessarily mean that it is *desirable* by standards either of morality or of social welfare Dope peddling is a productive enterprise, but it is a kind of production that most of us would like to see stamped out [2]

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[2] *Cf* Taussig, F W, *Principles of Economics,* Ch II, Third Edition, The Macmillan Co, New York, 1921, for an excellent discussion of productive and unproductive labor

Also, when we say that an activity is productive we do not necessarily imply that it is efficient Many methods of production are extremely wasteful of both human and natural resources The fact that some other method of production might be more efficient does not imply that a particular method is unproductive, it is merely inefficient

When we say that a certain individual's activity is productive, we do not thereby justify the income which he receives for it Real estate agents, stock brokers, movie actors, monopolists, and other persons may often receive far more than some people consider their services are worth, retail storekeepers may be making abnormal profits in times of rising prices, but none of this means that these individuals are unproductive

Consumption

Consumption is the direct and final use of goods or services in satisfying the wants of free human beings A distinction should be drawn here between consumption in the strict economic sense and the loose meaning which the word often has in popular speech Consumption does not mean amount sold The Federal Department of Commerce publishes figures of what it calls cotton "consumption" in the United States[3] Actually, these figures are the *amounts* of raw cotton used by textile mills Let us see what is really involved Of the millions of pounds of cotton sold to the mills this year, some will be in the form of unsold or undelivered cotton thread or yarn Some will be in the inventories of raw material or finished goods of knitting mills and weaving mills Some will be in the hands of bleachers and dyers Some will be in the form of unused cloth or finished goods in the dress and shirt factories Some will be unsold goods on the shelves of wholesale and retail merchants And some will be unused sheets in an old maid's hope chest Of the stocks of raw cotton sold to the mills this year, probably only an infinitesimal part will be actually consumed during the year The cotton goods which we are consuming now belong largely to the production of last and previous years [4]

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[3] More recently many government bureaus have avoided this misuse by calling the figures "apparent disappearance," *"mill* consumption," or other similar less confusing terms

Consumption does not mean the "using up" of a good unless such using is done by the ultimate consumer Coal is used up every day to generate power for the operation of machines in factories Economically speaking, however, such coal is not consumed until people use the goods which the machines have made The amount of wear and tear on a machine that occurs in making a single consumer's good may be said to be the consumption of the machine by the ultimate consumer as he uses up the product If businessmen would avoid the careless mental habit of considering everything they themselves have sold as being immediately consumed, and would try instead to find out what is actually happening to the goods, they would sometimes avoid producing for an already overstocked market

Consumption is the final end and object of all economic activity If you were to ask the average manufacturer of machine tools why he was making them, his first answer would probably be "Because I can sell them," or "Because I can sell them at a profit" But a moment's reflection will show that unless those machine tools are capable of making consumer's goods which people want, or unless they are capable of making other tools which will in turn produce the consumer's goods which people want, the manufacturer will soon not only be unable to sell them at a profit, but will be unable to sell them at all. At present it is only the *belief* that another manufacturer has that he in turn can sell the goods that the machine will make which induces him to buy the machine Later, in the chapter on business cycles, we will see how such a belief can often be in error

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[4] For a clear picture of this phenomenon, see Taussig, F. W , *Wages and Capital.* The Macmillan Co , New York, 1896.

If at times we refrain from consuming all we might (in other words, if we *save*), the only rational motive for such conduct is that we believe that by so doing either we or our descendants may be able to have a greater quantity of goods,✓ or an equal quantity of goods that will have greater utility in the future,✓or that more spending yields no more satisfaction ✓

The most important way in which the economic well-being of everyone in the community can be improved is by increasing the total amount of goods available for human consumption[5] The only way in which the economic welfare of the individual can be improved is by an increase in the stock or the quality of goods which he can command for his own consumption Often these two aims are in harmony with each other Whenever an individual finds that by producing more goods his own income will be increased, he will be encouraged to make the effort, and both he and the community as a whole will benefit Unfortunately this is not always the case Robbery and fraud are ways of increasing the income of an individual without increasing the welfare of the community Hence they may be condemned on economic as well as on moral grounds There are also other ways in which the greatest well-being of the individual and that of society may diverge For instance, assume that a union of bricklayers has a monopoly of its trade If this union should find that it could command a greater income by laying only 1,000 bricks a day instead of 1,400 and should proceed to do so, its own welfare would be increased, but that of the community would suffer Or, assume that a manufacturer has a monopoly of a certain product If he finds that he can make a greater total income by producing a small quantity of articles, it will be to his own individual interest to do so, and his gain will be the community's loss Fortunately the extent to which this is possible is somewhat limited But the questions of monopolies and their consequences will continue to occupy a major portion of our attention throughout this book

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[5] Other possible ways might be a decrease in population with the same amount of goods, or an increase in quality of the goods Whether *everyone* actually gained would also depend upon the distribution of the increased wealth

Property

Property is not goods but the right to the possession, use, enjoyment, and disposal of goods and services Thus, the *right* which I have to the use of a house, either because I own it or because I am renting it, is property So also are the *claims* of debts which I may have against someone, and the right to ride on a train after I have purchased a ticket

The student should be careful to distinguish between *property* and *documents in evidence of property* For example, my *right* of ownership of a house is property, but the deed to the house is merely a document in evidence of my right of ownership, a legal proof of ownership If the deed should be lost or burned, the *right* of ownership which constitutes my property will be unimpaired, provided the deed has been recorded in the county clerk's office, or provided I can bring forward other proof that I own the house Similarly, stock certificates, bonds, written records of contracts, and railroad tickets are not property They are documents in evidence that property exists

Factors of Production

The *factors of production* are land, labor, and capital All three of these will be required in some proportion in any modern productive enterprise It is possible to conceive of some exceedingly primitive productive processes being carried on with land and labor alone, entirely without capital goods Such processes would be hunting or fishing with one's bare hands, or picking wild berries But as soon as the hunter fashions a rude club, as soon as the fisherman makes a hook and line, and as soon as the berrypicker uses a pail, these producers will be making use of capital goods Since any form of tool, no matter how crude, is a capital good, we shall be safe in stating that at least these three factors are involved in all modern productive enterprises

Land in the economic sense means all of the natural resources used in the process of production These include the powers of the soil that are used for agriculture and forestry, mineral resources, water power and the uses of the surface of water for navigation, the fish and the minerals of the sea, and, finally, the use of land for sites or locations for productive enterprises In other words, land in the economist's meaning includes all original non-human sources of energy and raw materials plus standing room

Labor in the economic sense includes all human effort, either physical or mental, expended in the process of production This definition is much broader than the popular concept of the term *labor* Thus, not only the work of a carpenter, a machinist, and a ditchdigger is labor, but also the work of a musician in composing, of a corner grocer in buying and selling, and of a Henry Ford in managing his automobile factory Any human effort which results in an increase of utilities is productive labor in the economist's meaning.

Capital may exist in the form either of capital goods or of money capital, or both, depending on the circumstances of the problem we are analyzing and the point of view of our analysis, as explained below [6]

Capital goods consist of all produced goods used in the process of production Land and labor are the *original means of production.* All of the tools, machinery, plant and equipment, and semifinished goods, in short, all of the material equipment used in production is merely the physical embodiment of the past services of land and labor These material goods are called *intermediate* goods, or *capital* goods

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[6] Consult the article, "On the Meaning of the Marginal Product," by Fritz Machlup, in *Explorations in Economics* (essays in honor of F W Taussig), McGraw Hill Book Co, Inc, New York, 1936, pp 250 ff, for a discussion of the nature of capital and the units in which it is measured

As an aid in production, land itself might be considered as one form of capital good, and for many purposes there is no significant difference between land and what we have called capital goods However, since there are differences in the conditions of the supply of land and in the supply of intermediate goods, we have chosen to call land a separate factor of production, and we have ruled it out of the category of capital goods by the use of the phrase "produced goods" in our definition

Money capital is the money funds available to an individual or firm for use in gaining command over the services of the original means of production The command over these services may be obtained by hiring labor, by renting or purchasing land, or by purchase or hire of capital goods in which the past services of labor and land are embodied The process of spending money capital for these services that are to be used in production is called *investment* (The term *investment* is also used to mean the purchase of income-bearing assets, such as the stocks or bonds of different firms But, unless specifically indicated, we shall not use it in this second meaning) Money capital is available to a firm either through ownership or through borrowing

When money capital is invested in such a way that the value represented will be fully recovered by selling the single unit of the product on which it is used, it is called *circulating capital*[7] The wages paid to the laborers whose efforts are expended directly in making a unit of a product, the money spent for the raw material used to make the product, and the freight charges to send the good to market would all be examples of circulating capital

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[7] In accounting terminology circulating capital is used to designate those investments which will be recovered within a given fiscal period (usually a year) This definition is more arbitrary than ours, but it may be more satisfactory to the accountant for his own purposes

When capital is invested in such a way that only a part of its value will be recovered by selling a unit of the product on which it is used, it is called *fixed capital* The money spent for plant and equipment or for upkeep and repairs will be forms of fixed capital The full cost of a factory will not be recovered in the selling price of one unit of a product which is made in that factory But if the business succeeds, the price of the product will cover the entire cost of the circulating capital used in making each unit, plus a small amount which the owners of the business may take to reimburse them for the sum originally spent on the factory, or which they may reinvest to replace the plant equipment as it wears out The value of fixed capital is thus recovered in installments by selling a number of successive units of the product[8]

Management is really one kind of labor under the general definition given above Because management is a *special* kind of labor, it is often classed as a separate factor of production Management consists largely in the making of decisions In the first place, the product to be manufactured or the business to be established must be determined. Then decisions must be made as to the proportions in which land, labor, and capital will be used and as to the methods by which they will be used. The amount of output will have to be decided upon, then the best size of plant or establishment to produce that output will have to be determined Finally, there will be the labor of supervision to see that these decisions are carried out properly The functions of management (that is, the labors of decision and supervision) may be performed by the owner or owners of a business, or they may be delegated in part to hired managers

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[8] If we are thinking of the capital of a nation, we cannot consider paper money as capital, but must confine national capital to capital goods An individual can obtain more command over the services of the original means of production by having more money with which to bid them away from other persons But a nation cannot increase the sum total of available services merely by printing more paper money

In actual life, the services of the various factors will not always be provided by separate individuals Thus, a farmer may be a combination of landowner, laborer, capitalist, and manager The same thing may be true of the owner of any small business In fact, any two or three of these functions may be exercised by the same individual But we should keep in mind that these are still separate functions, because, as we shall discover later, the incomes of these factors are determined differently.

The Marginal Concept

One of the most important concepts which the reader will have to master in order to understand economic literature is the concept of the marginal unit *The marginal unit* of any factor of production, of any stock of goods, and of any output of goods *is the unit whose acquisition or loss* (or whose addition or subtraction) *is under consideration* Whether the question is one of adding or subtracting will usually be apparent from the context The marginal unit is not necessarily the last unit, although it may appear to be so on a diagram In any stock or output of *identical* goods, or in any group of *identical* units of a factor of production, obviously any unit is a perfect substitute for any other unit, and thus the concept has reference to the addition or subtraction of any one unit without regard to which particular unit it may happen to be For example, an employer who feels that he must lay off one man from a group of workmen of exactly similar kind and degree of skill may follow the policy of laying off the workman with the fewest dependents rather than the last one who was hired

On the other hand, when we are considering firms in an industry or farms in agriculture, the marginal firm or farm is the highest-cost firm or farm. In other words, it is the firm or farm which is just managing to stay in business and will be the first to leave the competition if the price of the product falls.

With this set of definitions thoroughly in mind, we can begin our exposition of economic activity. These definitions will be further explained, and other concepts will be defined as we proceed.

CHAPTER V

Utility and Value

Note Chapter VII presents an alternative approach, based on indifference curves, to the material in Chapters V and VI Whichever approach is selected, it should be mastered thoroughly before any attention is paid to the other After this study, the alternative approach may be used as collateral reading for comparison

WE HAVE already defined utility as the quality or capacity of a good which enables it to satisfy a human want. A moment's reflection will convince the reader that his wants for different kinds of goods are of different intensity, and that consequently the goods which satisfy those wants will possess different degrees of utility for him If you were given your choice of going without food for a week or not going to the movies for a week, even the best of shows would not be likely to induce you to give up eating The utility of food is greater to you than that of movies On the other hand, if your board bill has been paid for the coming month and you have just finished your dinner, the choice between eating another meal immediately and going to see your favorite screen star would probably be settled in favor of the latter Obviously, under these circumstances the utility of a single movie is greater than that of a single meal How can we explain this apparent contradiction?

Law of Diminishing Marginal Utility

The answer lies in the *law of diminishing marginal utility* which we shall now develop and explain Given a large enough quantity of any one good, our wants for that particular good will be completely satisfied, so that we desire no more of the article Furthermore, after the first unit, each succeeding unit of a good acquired or consumed will yield us less satisfaction than the preceding unit [1] A few examples will make this clear

Let us assume that you are extremely fond of fresh strawberry sundaes, and that someone offers to buy you all you can eat at one sitting The first one would taste delicious, the second one would give less satisfaction, the third still less, and so on until eventually you would reach a point where eating one more sundae would no longer give any satisfaction In other words, the *utility* of each successive sundae has been *diminishing* with each one consumed until you have reached the point of zero utility Even though your friend is still willing to buy more sundaes for you, you will not care to eat them If he should now offer to give you a dollar for each additional one that you eat, you might try it for a while But each sundae now would give you increasing discomfort and dissatisfaction (*disutility*) and you would soon reach a point where the disutility of eating another sundae was so great that a dollar would no longer compensate for it, and you would stop completely [2]

In the preceding illustration, we have assumed that consumption occurs during one short period of time However, the law of diminishing marginal utility applies also to the possession of a stock of goods of one kind which may be used at the pleasure of the owner Let us assume that the commodity is suits of clothes One suit of clothes will possess a high degree of utility for me, since it will protect me from the elements, will keep me from being arrested for indecent exposure, and will save me from the ridicule I would encounter from my friends should I go naked   A second suit will not be quite so important, but its utility will still be high because it will save me from having to go to bed while the other is at the cleaners A third suit would provide an agreeable variety, and should I desire to dress differently for different occasions, additional suits would possess a high though diminishing degree of utility for me   The reader may here properly object that different kinds of suits are different commodities, although they are good substitutes for each other   I would be forced to agree If our example is confined to the addition to our stock of more suits of the same cloth and cut as the first, the utility of each added suit would decline much more rapidly   However, if we agree that a person acquiring a wardrobe at the rate of one suit at a time will buy first those suits which have the most important uses for him, it is perfectly proper to speak of the diminishing marginal utility of suits in general as well as of a particular kind of suit

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[1] The proof of this statement may be found in the fact that if marginal utility did not decrease with an increase in quantity, once one started to buy a commodity, he would never buy anything else

[2] This illustration is somewhat more vivid than it is exact If you were offered 10 or 12 sundaes, all at the same time, any one of them would not have much marginal utility regardless of whether you chose to down it first or last See also Knight, Frank H , *Risk, Uncertainty and Profit,* Houghton Mifflin Co , Boston, 1931, Ch 3

The Marginal Unit

The reader will notice that we have been careful to speak of diminishing *marginal* utility   By the *marginal unit* we mean *any unit in a stock of goods which is used for the purpose of least utility*   If the goods are identical in kind, the marginal unit will be the unit the acquisition or loss of which is under consideration in a given period of time   In any stock of goods, the marginal unit will be the one which the owner will part with most readily if he is forced by circumstances to give up something (for instance, if his salary is cut, he will give up the purchase of those units of goods which were marginal to him at his old salary level)   In a stock of goods of identically the

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[3] Note that marginal utility may be *negative*, as, for example, when we have so much of a commodity that we desire the storage space for something else

same kind, *any* unit of the stock will be a perfect substitute for any other unit Therefore, it is possible for us to say that in a stock of *identical* goods, any unit of the stock may be the marginal unit, and the utility of such a unit is the marginal utility of the stock of goods This is true since, if we were forced to give up one unit in a stock of identical goods, we would abstain from using the good in that use in which it yielded us the least satisfaction Thus, we might use salt for seasoning our food, for making pickles, or to scatter on our icy sidewalk So long as we have enough salt for all three purposes, the marginal utility of salt to us will be only the utility of a pound of salt in its least important use, that is, for scattering on the sidewalk. If our stock of salt were not enough for sidewalks, without sacrificing some of that devoted to other uses, we would give up scattering it on our walks If our stock of salt were still less, we would give up making pickles, and the marginal utility of salt would then be the high utility of a pound of it used for seasoning our food So long as all pounds of salt are the same, no particular pound will have any more utility for us than any other pound It is the amount which we possess that will determine the uses to which an article will be put, the marginal utility of the good will be the utility of a unit of it in its least important use As our stock of the good increases and successive units of it satisfy less and less important wants, the marginal utility of the good diminishes.

Total Utility

We must be careful to distinguish between *marginal* utility and *total* utility The *total* utility of a stock of a good is *the sum of the utilities of the various units considered as if the units were added to the stock one at a time* Thus, if we had three suits of clothes, their total utility would be the high utility of one suit if we possessed it alone, plus the utility of the second suit if we possessed only two, plus the utility of the third suit the fifty dollars he desperately needed to help set up a household

Measurement of Utility

Unfortunately, there is no scale or standard by which we can measure utility[5] That is, utility cannot be measured in inches, pounds, gallons, or any other concrete standard with which we are familiar The utility of a good, or of any unit of a good, can be measured only in terms of the degree of intensity of the want which the good is capable of satisfying Since the want exists only in the mind of each individual and the want for the same good will differ in intensity from one individual to another, it is probably impossible to set up any standard unit in which utility can be measured We can, of course, compare the utility of one good with that of another in our own minds For instance, I can say that one melon will give me as much satisfaction as ten pears, but this will not indicate the utility of either in any absolute sense The ratio of ten to one may hold either because of the high utility of melons to me or because of the low utility of pears, or because both are low in utility but pears are lower than melons But we know from experience and observation that there is a law of diminishing marginal utility, although marginal utility decreases at different rates for different persons and for different goods

A diagram may help to illustrate this law, even though the scale of utility units on such a diagram will have to be imaginary In both figures of Diagram 1 the vertical distances measured along the *OY* axes indicate the amount of utility as shown by our imaginary scale The distance along the horizontal or *OX* axes shows the number of units of the good that are possessed or consumed. The height of the rectangles in Figure 1 shows the utility of each successive unit. It will be noticed that there is no top to the first rectangle This is because in the case of a good capable of sustaining human life the utility of a first unit of it may be infinite[6]

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[5] It was precisely this difficulty which led to the indifference curve analysis given in Chapter VII

The heights of the second, third, and fourth rectangles and of successive rectangles decrease, indicating the diminishing utility of each successive unit added to the stock In the figure the utility of the seventh unit would be zero The possession or consumption of more units of this good would then begin to yield dissatisfaction or disutility, as is shown by the position of the rectangles from here on below the zero (*OX*) line At any point where possession or consumption ceases, the utility of the last unit is the *marginal utility* of the stock Thus, if our diagram illustrates the consumption of strawberry sundaes in the example five pages back, when we have eaten four sundaes the marginal utility of sundaes will be the utility of the fourth one, shown by the height of the fourth rectangle in the diagram The marginal utility of sundaes if we were

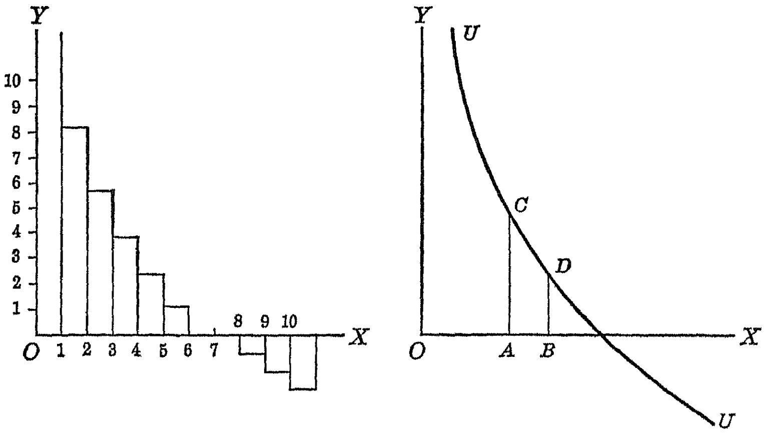

Fig 1

Fig 2

Diagram 1—Diminishing Marginal Utility

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[6] This is on the assumption that there are no even remote substitutes for the good Where substitutes exist, we would close the top of the rectangle and join the curve to the *Y* axis, although probably at a point higher than any shown in the limits of the diagram

to consume a fifth one is shown by the lesser height of the fifth rectangle, and so on

Total utility is shown in Figure 1 by the total area enclosed in the number of rectangles up to whatever point possession or consumption stops Thus the total utility of sundaes when three are consumed is the utility of the first, plus the utility of the second, plus the utility of the third It will be seen that although marginal utility is decreasing with the consumption of each successive sundae, total utility increases to the point where zero marginal utility is reached At the point of zero marginal utility, total utility is at a maximum Further consumption beyond this point would necessitate the subtraction of the disutilities of more units from the sum total of utility

If we choose small enough units of the good, the rectangles representing utility will be narrowed until they are vertical straight lines (for example, if, instead of the consumption of successive whole sundaes, we consider the consumption of successive spoonfuls) The tops of these lines may then be joined to form the curve *UU* as shown in Figure 2 This curve is known as the *curve of diminishing marginal utility* The same principles apply to this curve as to the rectangles in Figure 1 Thus, when *OA* units of the good are consumed, marginal utility is represented by the height of the line *AC,* and total utility is represented by the area bounded by the lines *OA, AC, OY,* respectively, and that part of the curve *UU* which lies above the point *C* When *AB* units of the good are consumed, marginal utility is represented by the height of the line *BD,* and so on

Certain goods satisfy only one kind of want or desire With this class of goods diminishing marginal utility is governed, as we have seen, by the extent to which the want becomes satiated with the possession or consumption of successive units of the good

Utility of a Good with Several Uses

Other kinds of goods are capable of two or more uses These goods, if our stock of them is limited, will be put to their most important use first (the use in which their utility is greatest) However, with the application of successive units of the good in its most important use, marginal utility will decline in that use, just as it does when there is only *one* use for the good When marginal utility in the first use declines to the point where it is just equal to the utility of a first unit applied to another use, we will start using any further supply for the satisfaction of the second want as well as the first Let us suppose that our stock of the good increases still further. When the marginal utilities of the good in its first and second uses have both declined to the point where they just equal the utility of a first application of the good to its third use, we will start using the good for its third purpose also If we now think of the marginal utility of the good in general, as applied to all its uses, we will see that if a good has several uses, marginal utility will decline less rapidly than if the good has only one use This principle may be more easily visualized if we think of a particular example Let us consider a pioneer farmer with a limited stock of wheat and no possibility of buying more His most important use for wheat will be as food for this year The second use will be as seed for a crop next year The third use might be to feed chickens Obviously he will not starve to death in order to save seed wheat But if he has any more wheat than enough to keep him alive, he will try to save some for seed to provide for next year, rather than eat all he possibly could With a still greater stock, he will start feeding some to the chickens, rather than eat and plant the whole stock.

We are now prepared to draw a diagram to illustrate this principle In each of the four figures of Diagram 2 the scale on the vertical or *OY* axis represents utility (measured in our imaginary units) The distances on the horizontal or *OX* axis in each figure represent quantity or number of units of the good, for example, bushels of wheat

MU is the curve of diminishing marginal utility of the good in its first use

M′U′ is the curve of diminishing marginal utility of the good in its second use

M″U″ is the curve of diminishing marginal utility of the good in its third use

M‴U‴ is the curve of diminishing marginal utility of the good in all three uses combined It is found by adding the other three curves together

Equal height of points on the three curves represents points of equal marginal utility in the three uses

With any amount of the good less than *OA* (Figure 1) it

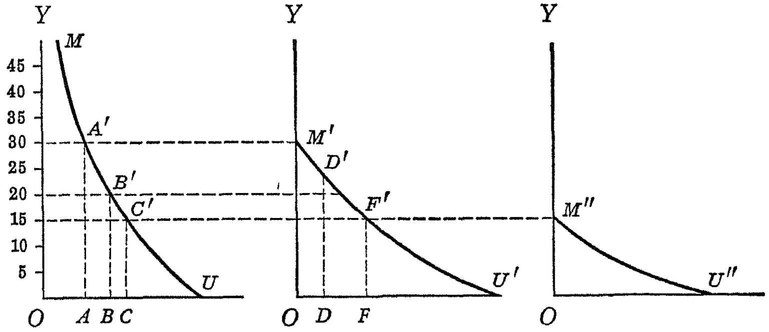

Fig 1—First Use Fig 2—Second Use Fig 3—Third Use

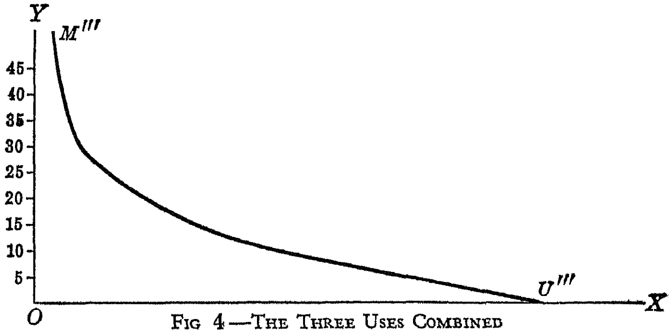

Fig 4—The Three Uses Combined

Diagram 2—Marginal Utility of a Good with Three Uses

will pay us to use the entire stock for use one because the marginal utility of *OA* units in use one is *A'A,* which equals 30, and no utility in the other uses is greater than 30

The utility of the first unit used for the second purpose is 30, thus, from here on it will pay us to use the good for the second use as well as the first, if our stock is greater than *OA*

Assume that the new stock increases to the amount *OB* (Figure 1), the new amount *AB* is equal to *OD* (Figure 2) The utility of the last unit in stock *OB* is *B'B,* or 20 (Figure 1) The utility of the last unit in stock *OD* is *D'D,* which is greater than 20 (Figure 2) Therefore, it would give greater utility to devote some of the increase *AB* to the second purpose rather than to use it all for the first want

By a similar proof it can be shown that any amount greater than *OC* plus *OF* (Figures 1 and 2) should have part of the increase devoted to the third use to secure greatest utility

It will be noticed that the extreme tops of the curves *MU* (Figure 1) and *M'''U'''* (Figure 4) do not touch their respective *OY* axes at any point This is because, with any good that is a necessity of life, a very small quantity would have infinite marginal utility Thus we may think of the curves as being extended upward indefinitely We are concerned here only with that portion of the curves which we can measure

This same type of analysis could well be applied to money[7] Since money may be exchanged for other commodities, the utility of the various goods which we may buy represents the utility of money in different uses Here, however, we have not three but a multitude of uses Nevertheless, the same principles still apply The individual who is trying to obtain the greatest amount of satisfaction for his money will not spend all of it on one product, but will try to obtain *equal marginal utility* for the last dollars spent upon various products The student with five dollars of his monthly allowance left may spend two dollars for two neckties, two dollars for a shirt, and the remaining dollar for tickets to the movies If you ask him why he did not buy five neckties instead, he might reply, "I would have liked to, but I could not afford them" Economically speaking, what he really means is that more neckties would still have some utility for him, but that the utility of the shirt and the movies was still greater, therefore, he divided his expenditures in the way which he thought would yield him the greatest amount of total satisfaction

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[7] Where money, or any other good, is desired simply as a collector's item, or for the sake of personal aggrandizement, the marginal utility may increase for a while.

Marginal Utility and Apportionment of Expenditures

If the marginal utility doctrine is accepted, then the assumption of economically rational conduct on the part of the individual requires that he so apportion his expenditures that the marginal utility of all goods bought will be in proportion to their prices Thus, if top hats are $10 00, neckties $1 00, and a pair of shoes $5 00, I will not buy a topper unless I consider that its utility for me would be equal at least to that of ten more neckties, or that of two more pairs of shoes ✓This relationship may be expressed by a simple equation, where *MU* represents marginal utility

$$\frac{\text{Price of } A}{MU \text{ of } A} = \frac{\text{Price of } B}{MU \text{ of } B} = \frac{\text{Price of } C}{MU \text{ of } C} = \frac{\text{Price of } n}{MU \text{ of } n}$$

This equation will have as many terms as there are different goods whose purchase I am considering

If this equation were followed exactly, then an increase in price of any one good would occasion a decrease in the purchase of that particular good and an increase in the purchase of other goods, until the proportions were again equal Even if a person figured as exactly as this equation assumes, there are some reasons why exact proportions might not be capable of achievement Certain durable consumers' goods are so high priced that an exact proportion of marginal utility to price for one good equal to the proportions for other goods may be difficult to achieve This might apply to automobiles, refrigerators, electric stoves, and similar high-priced articles Part of this difficulty may be overcome by installment plan buying, which, although it increases the actual price of the article (see chapter on "Interest"), may make the apparent burden of price less for those who do not stop to figure total cost accurately Perhaps more important is the practice of driving a car a greater number of years to make the average cost of depreciation lower, or of purchasing a second-hand, rather than a new car in the first place

A most important qualification is that such an equation be applicable only as long as the individual's tastes (relative marginal utilities) remain unchanged Thus both prices and tastes must remain unchanged over a reasonable period of time for the individual to achieve that division of his expenditures which will yield him the maximum satisfaction from his purchases In actual practice only a rough approximation is attained

Value

After our inquiry into the nature of utility, we are now prepared to use the concept of utility as a tool to help explain the value and price of the goods we buy The *value of any good is its power to command other goods in peaceful and voluntary exchange* Thus, if I have a golf club which I am willing to trade for a dozen golf balls, and if you have a dozen golf balls that you would be willing to give me for the club, the value of the club may be said to be one dozen golf balls, or the value of the balls may be said to be one club To measure accurately the value of any article, we should have to discover how much it would exchange for in terms of every kind of good in existence To do this completely would be a fantastically difficult task However, whenever exchange is carried on by barter, it is necessary to make at least a start on this problem in order to make the best possible trade For example, I might have a horse which I wanted to trade for sheep Someone offers me two sheep for the horse But I find that I can trade the horse for a cow and that I can trade the cow for three sheep Further effort might disclose a still better kind of trade It may have been this kind of difficulty, among others, that induced people to give up barter systems and start using money as a medium of exchange and measure of values

Value and Price

The price of anything is its value measured in terms of a standard monetary unit In the United States the standard monetary unit is the dollar Price gives us a great convenience in measuring values At any particular instant of time we can say that the values of different goods are proportional to their prices Thus, if a bushel of apples and a bushel of pears each sells for one dollar, we can say that they are equal in value If a bushel of peaches sells for two dollars, we can say that its value is twice that of either apples or pears, and so on

Yet this method of comparing the prices of various articles will give us their relative values only so long as all prices remain unchanged If the price of one article alone should rise, while other prices remain the same, we could say that that article had increased in value in terms of other goods, or that all other goods had declined in value in terms of that article When all prices, or a great number of them, are changing from one time to another, we cannot say whether an increase in the price of any one good represents an increase, a decline, or no change in its value unless we know what has happened to all other prices To illustrate this simply, let us assume that there are only three commodities in existence motor oil, butter, and eggs, and that the following table represents changes in their prices

	1936 Prices	Assumed Prices After Inflation
Motor oil	25c qt	$2 00 qt
Butter	25c lb	1 00 lb
Eggs	25c dz	50 dz

All three prices have gone up The value of motor oil has risen It will now exchange for twice as much butter and four times as many eggs as in 1936

Butter has declined in its value in terms of motor oil, but has risen in value in terms of eggs In terms of both together, it has not changed in value One pound of butter will now buy half as much motor oil and twice as many eggs as before.

In spite of having risen in price, eggs have declined in value in terms of both butter and motor oil One dozen eggs in the period after inflation will buy only half as much butter and only one quarter as much motor oil as it did in 1936

We shall have more to say later about the general level of prices However, this simple example should save us from confusing value and price The changing price of an article, taken by itself, is not a good index of changing value in different times nor in different places If wages (the price of labor) are higher in New York than in Chicago, we cannot say whether the value of labor is greater in New York unless we know the prices of all other commodities in both cities In the discussion which follows in the next few chapters we shall assume, unless it is specifically stated otherwise, that the price of all goods other than the one we are examining remains unchanged In this way we can properly consider changes in price of a particular article as being representative of changes in its value

Use Value

Certain of the earlier economists were fond of attempting to distinguish between value in use and value in exchange In doing this they drew so frequently upon the experiences of Robinson Crusoe that the term "Robinson Crusoe Economists" sprang up as a term of derision for them The weakness of their arguments, such as it was, is to be found in the fact that marginal utility varies from one individual to another and also varies for the same individual in different circumstances Thus, if Crusoe, instead of finding himself upon a desert island, had been set down in the middle of London in a rainstorm, a ride in a hansom cab would have had far more utility than the nails and ship's timbers which he valued so highly on the island

Most of our economic activity is centered in highly developed economic systems where exchange is freely practiced It is dangerous to consider the economic conduct of a group simply as a multiplication of the economic actions of an individual in isolation The fact that the individual is in a group will alter both his economic motives and his freedom to exercise them

CHAPTER VI

Demands for Goods

IF WE WISH to explain the price of any article, there are two questions which must be fully answered First, why are people willing to pay the price which they do pay for it? Second, why do they have to pay what they do in order to obtain the article? When we have found the full answers to these two questions, we shall have explained *the law of supply and demand*

Demand and Marginal Utility

If the total existing amount of a good is extremely small, the whole supply of it may be sold to those individuals who have both the greatest estimates of the marginal utility of the good and the greatest incomes, that is, to those people who would pay the highest prices rather than do without the good If the amount in existence is greater, in order to dispose of it all either more units of it must be sold to the same people (in which case its marginal utility to them would be lower), or some of it must be sold to other people who have either lower incomes or lower estimates of the utility of a first unit of the good In either event the price would have to be lower in order to induce the buyers to take the whole amount offered for sale The question of what determines the amount which will be offered for sale will be reserved for the chapter on supply At present we are concerned with the demand side of the market.

Demand Defined

The demand for a good is a schedule of the amounts that buyers would be willing to purchase at all possible prices at any one instant of time[1] A thorough understanding of this definition will save the reader from many logical errors Thus, by this definition, the only circumstances under which we can say that the demand for a good has increased are (1) if people will buy more of the good at the same price, or (2) if they will pay a higher price for the same quantity If people's tastes and incomes have not changed, the mere fact that they would buy more of the good at a lower price is not a change in demand It is merely an increase in amount purchased in response to a lower price in the same demand schedule If the conditions of demand remain the same, the only reason for a lower price would be an increase in the amount of which sellers were trying to dispose To call the greater amount purchased at the lower price an increase in demand, under such conditions, would confuse the issue What has really caused the lower price is an increase in the supply, which must be sold under the same demand conditions

Demand Schedules and Demand Curves

The nature of demand will be more clearly understood if we attempt to construct a demand schedule for some product Let us consider a list of the number of shirts I would be willing to buy at various prices This schedule would depend upon both the marginal utility of shirts to me and the marginal utility of other ways in which I might spend the same sum of money My schedule follows

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[1] Demand may also be considered as a *rate* of amounts that would be purchased during a given time period, such as a week, a month, or a year The longer the period chosen, however, the greater the danger that the conditions of demand have changed, and that our observations represent not one demand curve but an average of the results of a perhaps unknown number of different demand curves

Price of Shirts	Number that I Would Buy
$3 50	1
3 00	2
2 50	3
2 00	4
1 50	5
1 00	7

Now, if we could see into the minds of everyone, we might construct a demand schedule for shirts for the whole community Some people with higher incomes or higher estimates of the marginal utility of shirts would be willing (if necessary) to pay much higher prices for one or two shirts rather than go without them Others with lower incomes or with lower estimates of the marginal utility of shirts would not be willing to pay so much as I would If the reader will attempt to draw up his own demand schedule of the amounts that he would buy at various prices, he will probably find them considerably different from mine Now let us assume that we are mind readers so that we can find out the demand schedule for shirts of each person By adding together the number of shirts that each person in a given city would buy at each price, we could construct a market demand schedule for shirts within that city It might appear thus

Price of Shirts	Number that Would Be Purchased
$10 00	200
9 00	300
8 00	400
7 00	600
6 00	800
5 00	1,200
4 00	1,600
3 00	2,400
2 00	4,800
1 00	5,600

We can plot these figures on a diagram to give us a demand curve (Diagram 1)

It should be noted that, except for one point on the demand curve, all of the curve is imaginary If the price does happen to be $2 00 and we notice that 4,800 shirts are actually sold, this will be one real point on the true demand curve for the product How many more would be taken at a price of $1 00 or how many less would be bought at a price of $3 00 we have no way of knowing exactly, unless sellers should change their prices to those figures while conditions of demand remain the same Certain economists have attempted to draw so-called statistical demand curves for certain products from amounts sold at prevailing prices in successive periods of time In order to do this, they have to assume that conditions of demand have remained unchanged and that the only factor causing the changed price is the change in supply Obviously this will seldom be the case, because from one time to another, while the price of one product is changing, the prices of other goods may be changing, people's incomes may be changing, and even their tastes may be changing Any of these factors would affect their demand for the product However, even though they are inaccurate, these studies are probably closer approximations to the unknown points on the true demand curve than we could obtain by mere guessing

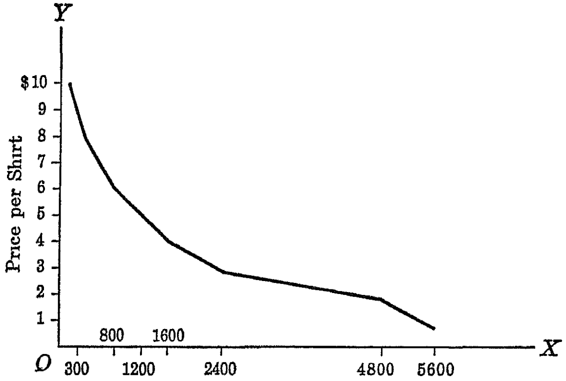

Diagram 1—An Assumed Demand Curve

Now, although we can know for a certainty only one point on the demand curve, we can safely say that, *under the same conditions,* a smaller quantity of the article would be purchased at any price higher than that which now prevails in the market This follows from the law of diminishing marginal utility and from the fact that people have different incomes If the price is higher, the product can be sold only to those people whose estimates of its utility are high enough, or whose incomes are great enough, so that the utility of the last units which they buy will be great enough to offset their reluctance to spend money for this particular article rather than for other goods A lower price than the one which prevails in the market would tend to offset the influence of diminishing marginal utility in the minds of the present buyers, and would thus act as an inducement for them to buy more The lower price would also tend to influence those people with lower incomes to buy the product who felt that they "could not afford it" at the higher price These are not mere theoretical presumptions, they have been confirmed by the experience of thousands of dealers in their price policies

First Law of Purchase

The above analysis enables us to state our first law of purchase, which is *Under the same conditions of demand, the amount of a commodity which will be purchased tends to vary inversely with its price* However, we must not lose sight of the assumptions we are making when we say "under the same conditions of demand" We assume (1) that people's incomes remain the same, (2) that their tastes remain the same, (3) that the prices of other goods remain the same; (4) that no new substitute for the product is discovered, (5) that people do not believe that this one change in price is a prelude to further changes, (6) that the product is not one which depends upon its high price for "prestige value" (for example, if diamonds were to sell for 10c a carat, the rich people might consider it "vulgar" to wear them and the poor, who ape the rich, might not buy them either) This last point, however, is perhaps already covered by our assumption of no change in tastes

A change in any one of the six conditions mentioned above is a change in the conditions of demand and will give rise to a new demand curve Our first law of purchase will then apply to the new curve for so long, and for so long only, as conditions of demand do not change again It may help us to illustrate this principle by a diagram

Let us assume the commodity to be butter The solid curve *DD* represents the present demand The point *P* is the only point we actually know (we find that 35 million pounds are actually bought at 32c).

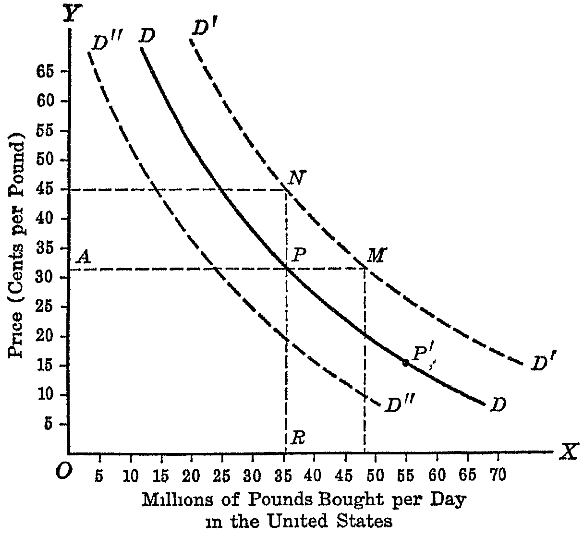

Diagram 2—Changes in Demand

If the price should drop to 15c while all other conditions remain the same (and if our demand curve is accurate), 55 million pounds would be sold The change, from point *P* to point *P′*, does not represent a change in demand, but a change in amount purchased in response to a lower price

Now let us suppose that, with everything else unchanged, the price of bread should drop from 10c to 5c a loaf. Some people will buy more bread and want more butter to put on it. Those who do not buy more bread will have more money to buy butter for the bread that they do use. The new demand curve for butter might be represented by the dotted line *D′D′*. It will be noticed that at the same price a greater amount of butter will be purchased (the increase is from *AP* to *AM*), or for the same quantity a greater price would be paid (the increase is from *RP* to *RN*).

Now let us assume that, instead of the price of bread declining, a new good cheap substitute for butter is discovered. The new demand curve for butter might be represented by the dotted line *D″D″*. It will now be seen that demand has decreased. At the same price a smaller quantity would be bought, or the same quantity could be sold only at a lower price.

Elasticity of Demand[2]

We must now analyze demand a little further. A little reflection will convince the reader that even though his tastes and his income should remain unchanged, the amount by which he will vary his purchases in response to changing prices will differ with different articles. For instance, in my own case, I now buy both a morning and an evening newspaper at 3c each. If the price of newspapers should rise to 5c (a 66 per cent increase), I would very likely give up the evening paper rather than cut my consumption of cigarettes by one package a week. On the other hand, if the price of cigarettes should increase from 15c to 25c (also a 66 per cent increase), I would very likely give up the evening paper, an occasional trip to the movies, and whatever other petty economies were necessary in order to be able to smoke the same number of cigarettes The economist would say that my demand for newspapers was more *elastic* than my demand for cigarettes, or that my demand for cigarettes was very *inelastic* as compared to my demand for newspapers

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[2] To conform with our definition of demand, it might be better to call this *Elasticity of Purchase*.

The *elasticity of demand* is a measure of the relative change in amount purchased in response to a relative change in price on a given demand curve[3]

Perfectly inelastic demand means that there would be no change in amount purchased in response to any change in price This would be represented graphically by a vertical straight-line demand curve To express this in other words, we can say that the elasticity of demand is equal to zero, indicating that there would be no change in number of units purchased regardless of the change in price

Perfectly elastic demand means that an infinite amount would be purchased at the same price This is represented graphically by a horizontal straight-line demand curve *Elasticity of demand equal to infinity* and *infinitely elastic demand* are synonymous expressions for perfectly elastic demand

For some purposes it is more convenient to think of elasticity in terms of total amount spent for a product (that is, the price per unit multiplied by the number of units purchased) In these terms, if the total amount spent for a product remains the same after a change in price, elasticity of demand is unity. Unity of elastic demand is the dividing line between elastic demand and inelastic demand

If the total amount spent *increases* with a *decline* in price, (or *decreases* with a *rise* in price), elasticity of demand is greater than unity, the demand is elastic

If the total amount spent *decreases* with a *decline* in price

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[3] See Robinson, Joan, *Economics of Imperfect Competition*, Ch II, The Macmillan Co , London, 1934, for a more thorough treatment of the geometry of elasticity

(or *increases* with a *rise* in price), the elasticity of demand is less than unity, the demand is inelastic

Diagrammatically, elasticity may be measured by changes in the area of a rectangle created by drawing perpendiculars from any point on a demand curve to the *X* and *Y* axes The area of such a rectangle will represent total amount spent for the product

In Figure 1 of Diagram 3 it can readily be seen that the elasticity of demand at the price point *P* is greater than unity With a small decline in price, the area *RBOD* is greater than the area *PAOC* In other words, with a small decline in price the total amount spent on the product has increased

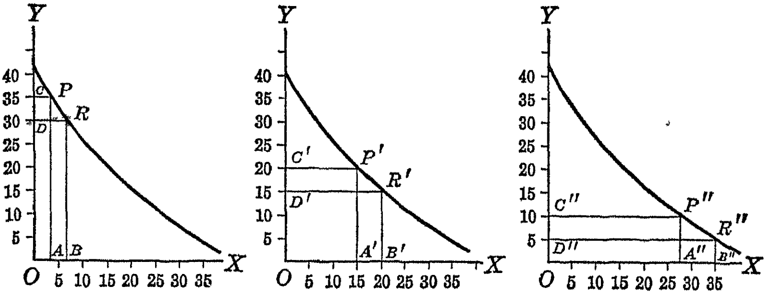

Fig 1 —Elasticity Greater than Unity

Fig 2 —Elasticity Equal to Unity

Fig 3 —Elasticity Less than Unity

Diagram 3 —Elasticity of Demand

In a similar manner it can be shown that the elasticity of demand at price *point P'* (Figure 2) is equal to unity for the same absolute decline in price. At price point *P''* (Figure 3) the elasticity of demand is less than unity

Note that all three price points, *P, P'*, and *P''*, lie on identically shaped demand curves The reader should recognize that it is not proper to speak of the elasticity of an entire demand curve unless the curve happens to be of uniform elasticity throughout its length We may speak of the elasticity at price points on a curve, or of parts of the curve.

Ordinarily, however, when we speak of the elasticity of demand for a product, we are thinking of what change in the amount purchased would be occasioned by a small change from the existing market price Thus we say briefly, if sometimes inaccurately, that the demand is elastic or that it is inelastic

The elasticity of demand is a concept which is extremely important in helping us to explain prices, we shall make repeated use of it throughout the text

Elasticity tends to be high when

1 Substitutes are good and numerous
2 Prices are relatively high
3 There are many uses or users

Elasticity tends to be low when

1 The commodity is jointly demanded
2 Quantities are relatively large and prices are low
3 The good is almost a necessity—no good close substitutes are available.

CHAPTER VII

Demand Explained by Indifference Curves[1]

Note This chapter is intended as an alternative to the approach in the chapters on "Utility and Value" and "Demands for Goods." Both approaches may be used, but the author is of the impression that the material will be grasped more readily, particularly by the beginning student, if attention is confined to one or the other.

Defects of Utility Analysis

UNTIL quite recently, most economists have based their explanation of demand upon the concept of utility. Utility is defined as the quality or capacity of a good which enables it to satisfy a human want. Since utility is only an idea which is supposed to exist in the mind of an individual, it has so far proved to be incapable of measurement, and there is little chance that any scheme of measuring it will be devised in the future. This difficulty has led many people into logical pitfalls and has forced others who were more careful into awkward statements in order to avoid the pitfalls.[2]

Any one of us can say to himself, however: "I would just as soon have one more shirt as four more pairs of socks", or, "I think I could enjoy one football game as much as I would enjoy five movies." This is equivalent to saying: "The utility of one more shirt for me is equal to the utility of four more pairs of socks", or, "The utility for me of one football game is equal to that of five movies" This is not at all the same thing, however, as saying, "The utility of a shirt is four times that of a pair of socks" The latter is an impossible statement A little reflection will convince the reader that he cannot say to himself that he desires one article exactly two or three or four times as much as another

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[1] This entire chapter is based primarily on Hicks, J. R., *Value and Capital*, Oxford University Press, 1939, on Hicks, J. R., and Allen, R. G. D., "A Reconsideration of the Theory of Value," *Economica*, 1934, and on Allen, R. G. D., *Mathematical Analysis for Economists*, The Macmillan Co., London, 1938.

[2] See also Robinson, Joan, *Economics of Imperfect Competition*, Ch. III, pp. 211-215, The Macmillan Co., London, 1934.

A Scale of Preferences

Each of us, nevertheless, can have and probably does have a *scale of preferences* among different goods We can convince ourselves of the existence of such a scale of preferences in several ways by attempting to decide how much we would decrease our consumption of various goods if our income were decreased by a certain amount, by attempting to decide how much we would increase our purchases of various goods if our income were increased by a given amount, or by attempting to decide how we would react to a change in price of a particular good Objectively, we may assure ourselves that others also have preferences among different goods by the fact that they actually do purchase some goods rather than others and do not stand forever undecided as to what to buy (Often the most difficult decisions are those in which we are attempting to please another rather than ourselves—buying a gift for a friend, or choosing the meat for a husband's dinner)

The careful reader may here object that we are using the concept of demand to explain demand This is not the case The fact that people do buy one or more units of one good in preference to the one or more units of some other good which they could purchase with the same amount of money is an observable and objective phenomenon which still remains to be explained All the strain which is placed on the reader's imagination is simply to assume that a person making such a choice does make the choice which he happens to prefer at the moment, or, if you wish, that he makes the choice which he *thinks* he prefers[3] At this point we can dismiss the concept of utility

An Indifference Schedule

As a first approximation to our problem, we may construct an indifference schedule An *indifference schedule* may be defined as *a schedule of various combinations of goods that will be equally satisfactory to the individual concerned* To take the simplest possible example, let us assume that there are only two commodities in existence, apples and oranges Now assume that I have 80 apples in my possession and no oranges Assume also that there is a man who has a barrel of oranges He tells me that I may take oranges from the barrel subject to one condition I must replace the oranges I take with a number of apples that would yield me satisfaction equal to that obtainable from the oranges I acquire, so that I will feel no better and no worse off after any exchange I might make As I start out in this imaginary experiment, I might leave 20 apples for the first orange, 12 apples for a second orange, 8 for a third, 10 for the next two, and so on The result of a number of such exchanges might indicate the following combinations of apples and oranges as being equally satisfactory to me

60 apples and 1 orange
48 apples and 2 oranges
40 apples and 3 oranges
30 apples and 5 oranges
24 apples and 7 oranges
20 apples and 9 oranges
16 apples and 12 oranges
15 apples and 13 oranges
12 apples and 17 oranges
10 apples and 21 oranges
8 apples and 27 oranges
6 apples and 37 oranges
5 apples and 45 oranges
4 apples and 57 oranges
3 apples and 77 oranges
2 apples and 117 oranges
1 apple and 237 oranges

This schedule refers to consumption over any given period of time and not merely to stocks of the goods

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[3] The problem of free will or predetermination may be left to the theologian and the philosopher

We can plot these points on a graph representing the number of apples on the vertical, or Y, axis and oranges on the horizontal, or *X,* axis Connecting these points with a line, we obtain the curve shown in Diagram 1.

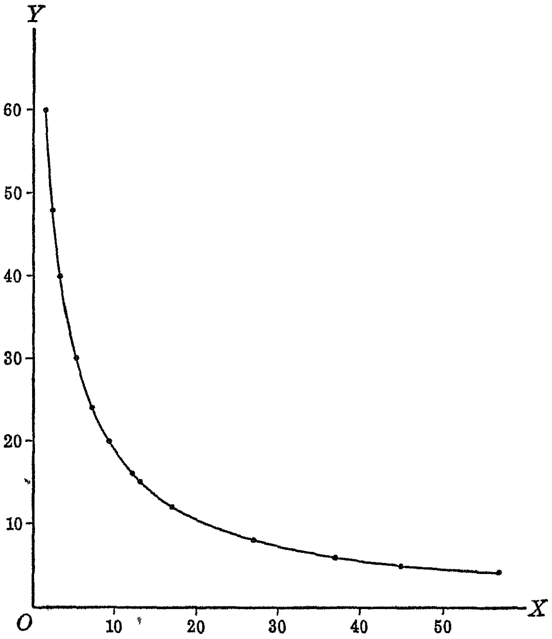

Diagram 1 —An Indifference Curve

This curve is an indifference curve Every point on it represents a combination of the two commodities that would be equally satisfactory to me Note, however, that on this particular curve the only points having any significance are the points that we have actually plotted The line between the points serves merely as "a convenient device to lead the eye from one point to the next"[4] In this case, to keep the illustration simple, we have chosen only points which yield whole number values for X and Y. If it were convenient to divide apples and oranges into any desired fractions, and *if the intervening spaces followed the same mathematical law as the plotted points,* then we might consider every point on the whole curve as a point on the same indifference curve. In the subsequent discussion, we will make these two assumptions and regard each indifference curve as a continuous curve. The reader will find it helpful to construct indifference curves of his own for these or any other two commodities.

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[4] Crum, W L, "Rudimentary Mathematics for Economists and Statisticians," Supplement, *Quarterly Journal of Economics,* May, 1938

Diminishing Marginal Rate of Substitution

The *marginal unit* of any stock of goods is that unit whose acquisition or loss is under consideration. We can avoid confusion if, in the remainder of this chapter, we adhere to a common terminology. We shall regard the commodity measured on the Y axis (apples in our example) as the commodity for which X (oranges) is being substituted. The rate of substitution will then be the number of units of Y for which one unit of X is a substitute. In the indifference schedule two pages back, when I have 60 apples and 1 orange, one more orange is a substitute for 12 apples, the marginal rate of substitution is 12 to 1. At the next stage, when I have 48 apples and 2 oranges, one more orange will be a substitute for 8 apples, and the marginal rate of substitution is 8 to 1.

If, without changing our schedule or diagram, we wish to reverse this procedure and consider acquiring apples in exchange for oranges, we start at the bottom of the schedule and read up. Thus, when I have 1 apple and 237 oranges, one more apple would compensate me for the loss of 120 oranges, the marginal rate of substitution is 120 to 1. When I have 2 apples and 117 oranges, one more apple would compensate me for the loss of 40 oranges, the marginal rate of substitution is 40 to 1.

At the next stage the marginal rate of substitution is 20 to 1, and so on[5]

One of the most important assumptions that has to be made in connection with the indifference curve analysis is that the marginal rate of substitution is always decreasing In graphic terms this means that the slope of the indifference curve must always be decreasing as we move along it from left to right A fairly general objective proof that this assumption is fulfilled in practice may be found in the observation of the conduct of the buyers on any market If the marginal rate of substitution did not decrease, then, once a person started buying one commodity, he would continue to buy that commodity and no others until his entire purchasing power was exhausted It is true that this is a rather negative sort of proof and is not sufficient grounds for claiming that the principle of diminishing marginal rate of substitution is universally true as applied to the purchase of all commodities by all people Nevertheless, we are all familiar with the fact that under the stimulus of changing incomes or changing relative prices of goods, people are able to leave one position of equilibrium in their purchases of different goods and arrive at another position of equilibrium

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[5] In some respects it is much easier to treat this problem in terms of an *increasing* marginal rate of substitution, that is, in terms of an increasing amount of X necessary to compensate for the loss of one unit of Y This was the treatment originally used by Hicks and Allen in the articles in *Economica* It appeared, however, that this treatment was confusing to Marshallians, and accordingly Hicks uses the concept of a diminishing marginal rate of substitution in *Value and Capital* It should be noted, nevertheless, that diminishing marginal rate of substitution and diminishing marginal utility are not the same thing In Marshallian terms the indifference curve indicates constant total utility of the two commodities combined Consequently, in Marshallian terms, the increase in marginal utility of the product which is decreasing in amount must compensate for any decrease in marginal utility of the stock which is increased sufficiently to keep total utility of the combined commodities at a constant level All that we say, however, is that the number of units of the commodity acquired must be a satisfactory substitute for the number of units of the commodity given up This proposition can be stated in terms of utility, but it is not necessary to do so

All that our assumption requires is that the transition between these two points of equilibrium follows a fairly regular course. It is idle to deny that there will not be at least some small segments of the indifference curves of some people for some products which fail to follow the principle of diminishing marginal rate of substitution,[6] but when we begin to translate indifference curves into demand curves, and into demand curves for a whole community, the probable error from this source becomes extremely small.

The Limiting Case of Substitution

An indifference curve in the form of a straight diagonal line at a 45-degree angle would indicate a constant marginal rate of substitution of 1 to 1. This is a limiting case and is possible only when one good is a *perfect* substitute for the other. Such might be the case if you were indifferent to the blandishments of the advertisers and bought cornflakes as cornflakes, one brand would be a perfect substitute for another brand, and you would, of course, buy whichever was the cheaper.

I am indebted to Professor R. G. D. Allen for pointing out that this is not only a limiting case, it is also an impossible case. If one product is considered a *perfect* substitute for another product in the mind of a buyer, then the two are not different products but simply different lots of an identical commodity. The fact that the products are not differentiated in your mind merely means that you feel that you are buying the same product from whoever sells it the cheapest. This attempted product differentiation may, however, be effective with some other buyers, but in this case the marginal rate of substitution would not be 1 to 1.

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[6] The best adverse examples would be the indifference curves of whiskey for drunkards, drugs for narcotic addicts, and, less seriously, that of stamps for the stamp collector. All of these people, however, generally eat at least occasionally, thus proving that their indifference curves for their favorite vice do not have an increasing marginal rate of substitution throughout their length.

Product Differentiation and the Rate of Substitution

On the other hand, even a slight degree of product differentiation might result in a constant marginal rate of substitution at some ratio other than 1 to 1 There may be, for example, some individuals who consume tea in very small quantities but who place a high premium on its freshness Such individuals might always consider 3 one-quarter-pound packages as a satisfactory substitute for 1 one-pound package of tea The marginal rate of substitution is ¾ to 1 In terms of money, these people would just as soon pay 75c for 3 one-quarter-pound packages as 75c for one whole-pound package

Complementarity

As the opposite limiting case to perfect substitution, we have the case of complete complementarity Complete or *perfect complementarity* exists where one unit of one good requires a standard number of units of another good for the combination to be of any use whatever Thus for most people one watch case requires one watch movement to go inside the case Most people would not care for one more watch case without one more movement, and vice versa In situations of this sort (other examples might be right and left shoes or right and left gloves), the indifference curves would be straight lines downward and turning at a right angle, the lines away from the turning point being parallel to each axis In most cases where complementarity is as complete as this, dealers do not usually sell the article separately from its complement In some other cases, as with cups and saucers, they may be sold separately or jointly, depending upon the practice of the individual store. Where they are sold separately, the housewife will buy saucers to replace broken ones, but will not buy more cups if her set of them is complete Even if the price of saucers is lowered, she will seldom be interested in buying more saucers than the number necessary to complete the ratio of one cup to one saucer (She cannot forecast which will break first)

Substitutability and Complementarity—The Dividing Line

We have seen that perfect substitutability is represented by a straight diagonal indifference curve at a 45° angle, and that perfect complementarity is represented by an indifference curve parallel to each axis and bent at a 90° angle We can generalize within these limits by saying that the flatter the indifference curve, the greater the degree of substitutability, and the more bent the indifference curve, the greater the degree of complementarity between the two goods We cannot, however, draw an exact dividing line between the two conditions by geometry Nor can we confine our attention to two commodities only We must introduce a third, which we may call money or general purchasing power (with the assumption that the prices of all other goods except *X* and *Y* remain unchanged) Under these assumptions, if an increase of one unit of *X* requires that some substitution of money for *Y* take place in order to leave the individual no better off than he was before, then *X* and *Y* are substitutes for each other (If *X* is a substitute for *Y*, then *Y* is also a substitute for *X*) On the other hand, if the rate of substitution of *Y* for money is *increased* when one more unit of *X* is acquired, then *X* and *Y* are complementary

A simpler example may make the proposition clearer If I buy some new tires in order to drive more safely over slippery winter roads, then I am sure to drive the car more often in winter weather, and accordingly will buy more gasoline than I would buy if I had not bought the tires with new treads (Tires and gasoline are complementary goods)

On the other hand, if the strain of winter driving does not appeal to me, I will ride on the bus instead of driving my car in the bad spells This means that I will spend more money on bus rides and less on tires (Bus rides and tires are substitutes for each other)

The Indifference Map

Diagram 1 was just one indifference curve based on the assumption that I started with 60 apples in my possession Had I started with 50 or 70, or any other number, we would have other indifference curves based on the various combinations of apples and oranges that would be equally satisfactory to me Each combination which is based on a greater number will lie on a higher indifference curve Each point on a higher indifference curve indicates greater satisfaction than that on a lower indifference curve Diagram 2 shows a family of such

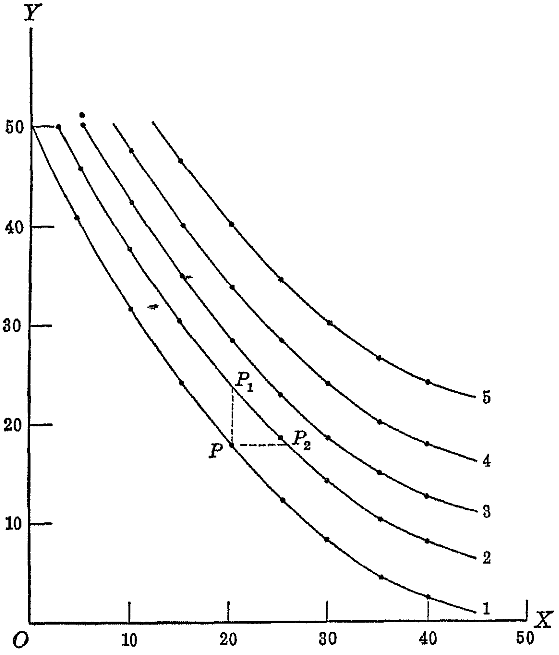

Diagram 2 —An Indifference Map

curves, or, as we may call it, an *indifference map* It will be noticed that the curves are numbered 1, 2, 3, and so on This system of numbering has no particular significance We might just as well have labeled the curves *A, B, C,* and so on

At any point on an indifference curve, a movement either upward or to the right brings us on to a higher indifference curve In Diagram 2, for example, a movement from *P* brings us to P_1 or P_2 The assumption behind this is that a greater quantity of either good accompanied by an unchanged quantity of the other good yields us a greater satisfaction Note carefully that we do *not* say *how much* greater this satisfaction may be Note also that the curves are not parallel There is no need for them to be Our only requirement is that one indifference curve must not touch another within the limits of our diagram In any actual case the indifference curves would be much closer together than we have drawn them here, and there would be more of them Our indifference curves are like the contour lines on a topographical map, showing only important changes

Indifference, Income, and Purchase

We now come to a very useful property of indifference maps If we know an individual's income, his indifference map, and the prices of the two commodities, we can determine directly from the indifference map the quantities of each commodity which he will buy (We still retain the assumption of only two commodities)

In Diagram 3, we assume an income of $140 00 per week Given a price of $5 00 for commodity *X,* we measure the distance *OQ,* 28 units, as the amount of *X* which the individual could buy if he spent his entire income for commodity *X* Given the price of *Y* as $4 00, we measure the distance *OR,* 35 units, as the amount of *Y* which the individual could buy if he spent his entire income for commodity *Y.*

The line *RQ* shows all possible combinations of the two commodities which the individual could purchase by dividing his expenditures on the two goods in all the different ways that will exhaust his total income Which combination will he choose? The line *RQ* cuts a number of indifference curves at points *A, B, C,* and *D* None of these points, however, represents the most preferred position, since, by moving along *RQ* in one direction or another, we come on to a higher indifference curve. At point *P* the line just touches (is tangent to) an indifference curve This is the highest indifference curve which can be reached by moving along the line *RQ* In other words, this is the most satisfactory division of expenditure between the two goods which can be achieved with the given income and the given prices of the two goods and the given indifference map

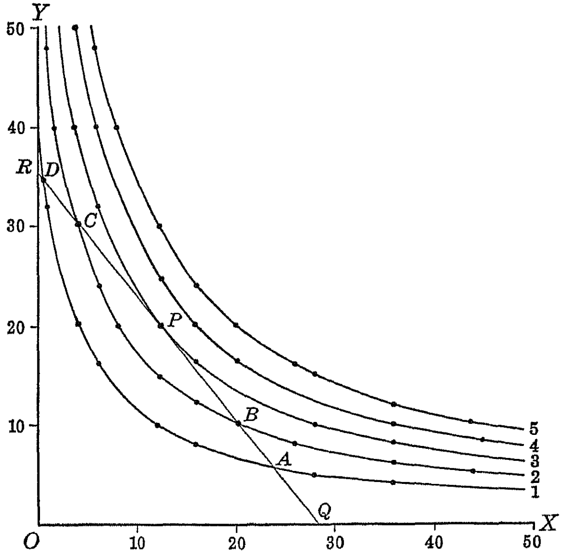

Diagram 3 —An Indifference Map Related to a Given Income and a Price Ratio

It may be instructive to note on Diagram 3 that if we doubled the prices of the two goods and also doubled the assumed income, there would be no change in the diagram An income of $280 00 and a price of $10 00 for *X* would again make *OQ* equal to 28 units An income of $280 00 and a price of $8 00 for Y would also make OR equal to 35 units, and the entire diagram would remain unchanged in shape and significance The broader meaning of this is that there is neither gain nor loss from inflation if *all incomes* and the *prices of all goods* increase in *exactly* the same proportion Any divergence from this pattern, however, means a gain for some people and a loss for others

The Price Consumption Curve

A further useful property of the indifference map is the fact that, if we hold income and the price of Y constant, then, by varying the price of X, we can read the quantities of X that will be bought at various price ratios of X in terms of Y directly from the indifference map

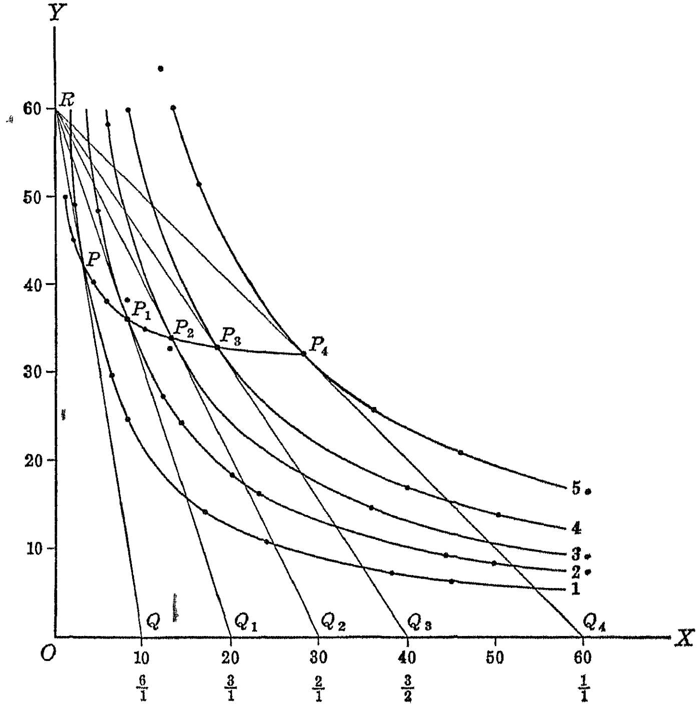

Diagram 4 —A Price Consumption Curve.

In Diagram 4 we assume a constant income of $60 00 per week and a constant price of Y of $1 00 per unit Then, at a price of $6 00 per unit of X, the slope of the line RQ is 60 to 10, that is, $6 00 will buy 6 units of Y or 1 unit of X At P, the point of tangency of the price ratio line with the indifference curve, we find that 3 units of X and 42 units of Y will be purchased The following table summarizes the readings from the diagram

Point	*Price of X*	*Quantity of X Purchased (Units)*	*Price of Y*	*Quantity of Y Purchased (Units)*	*Total Spent for X*	*Total Spent for Y*
P	$6 00	3	$1 00	42	$18 00	$42 00
P_1	3 00	8	1 00	36	24 00	36 00
P_2	2 00	13	1 00	34	26 00	34 00
P_3	1 50	18	1 00	33	27 00	33 00
P_4	1 00	28	1 00	32	28 00	32 00

Following the principles we developed in Diagram 3, we notice that each of the price-ratio lines is tangent to an indifference curve These tangents occur at the points P, P_1, P_2, P_3, and P_4 The line which connects these points may be called a *price consumption curve* The horizontal distances of the points from the OY axis indicate the amounts of X that would be purchased at various prices for X with the income, the price of Y, and the indifference map assumed constant

The Individual Demand Curve

So far our indifference curves have generally had reference to only two commodities This has been done for the sake of simplicity, but it is not necessary to confine ourselves in this way If the *prices of all goods other than X are assumed to remain unchanged,* then, instead of calling Y a single commodity, we may call it general purchasing power The indifference curves then represent the rates of substitution of X for all other goods in general (including, as one of the goods, the "cash balance" of the individual which may allow him to buy other goods at a later date rather than at present)

When Y is used to represent general purchasing power (with the prices of all goods other than X remaining unchanged), the price consumption curve is really a demand curve for X We shall find it more convenient, however, to translate this curve into the demand curve more commonly used by economists

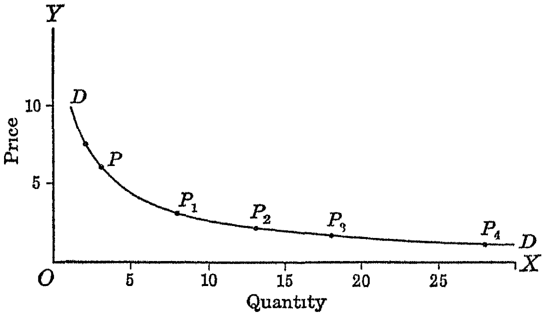

Diagram 5 —Demand Curve

Diagram 5 shows the demand curve which is represented by the price consumption curve in Diagram 4 In Diagram 5 the vertical or OY axis represents the price of a commodity, and the horizontal or OX axis represents the quantity purchased It may be noted that we have doubled both scales in order to enlarge the diagram and render it more readable. Columns 1, 2, and 3 of the table give the demand schedule or data which are represented by the curve DD Diagram 5 is simply a location of these points on a price and quantity diagram Several plotted points appear on the curve DD in Diagram 5 which are not located by curves and tangents in the price consumption curve of Diagram 4 These points, however, were actually computed and were omitted from Diagram 4 simply to avoid confusing the eye of the reader by too many curves and tangents drawn closely together

Community Demand

If we could summarize the price consumption curves or the demand curves of an entire community, we would have a collective demand curve for the number of individuals involved. If all the people whose demand was summarized had exactly the same kind of indifference maps as is shown in Diagram 4, then the demand curve, or price consumption curve, would have exactly the same general shape as the demand curve shown in Diagram 5. If we chose to alter the horizontal scale to take account of the number of people who would purchase the article at each price (for example, to change the horizontal scale to 10,000, 20,000, 30,000, instead of 10, 20, 30, if there happened to be 1,000 people of similar tastes, having identical indifference maps) then the curve would be a community curve rather than an individual curve.

It is extremely unlikely, however, that the above situation would occur. Even if people's indifference maps were all identical, those with higher incomes would find that the point of tangency of the indifference curve and the price ratio line lies on a higher indifference curve than is the case for those with lower incomes. That is, those with higher incomes would buy more of commodity *X* at the same price than those with lower incomes and the same indifference maps. Furthermore, there is more evidence to cause us to believe that there is generally some difference, and often considerable difference, in the indifference maps of different people, regardless of differences in incomes. These differences may be the results of habits acquired in previous environment, or simply the result of keener tastes for one or more of the goods which are lumped in the category of "all other goods," whose prices are assumed to remain unchanged. The extent of the desire for social conformity (keeping up with the Joneses) may result either in close duplication of the indifference maps of the members or a prices in a day), the demand per week, per month, or per year The longer the period chosen, however, the greater the likelihood that the conditions which are assumed to remain constant will actually change during the demand period For example, a demand curve for raincoats for a year might be drawn on the assumption (in addition to those given above) that the rainfall for the year would be average or "normal" Even if the normal amount of rainfall should occur, if it just so happened that all the storms came between the hours of 4 30 and 6 00 P M, it might be found that a great many more raincoats are sold during the year than were indicated by the number at any given price on the assumed or computed demand curve Clothing dealers are continually praying for what they call "seasonable" weather (that is, a cold winter and a hot summer, a spell of mild weather early in the spring, and a chill but not too cold autumn) This is because experience has taught them that they can sell more merchandise during a normal year at any given prices than when the winter is mild, so that people decide to make the old coat "do" for another year

Regardless of the length of the demand period, we must bear one very important qualification in mind *the points on a demand curve are alternative* and *not* successive Your demand curve (or schedule) might indicate that you would buy 2 pairs of shoes at $9 00 a pair, or 3 pairs at $6 00, or 4 pairs at $5 00 during a given year Assume now that the price at the beginning of the year should happen to be $9 00, and that you buy the 2 pairs If, immediately after you made your purchase of 2 pairs at $9 00, the price should drop to $5 00, and the points on your demand curve are as indicated, you would not buy even one more pair However, if the price had been $5 00 to begin with, you would have bought 4 pairs instead of the 2 pairs at $9 00 which you did buy Apparently your "allowance" for shoes is about $20 00 You may regret that you did not wait for the "bargain," but, having 2 pairs already purchased at a total cost of $18 00, if your conditions of demand remain the same, you will probably not purchase another pair at any price greater than $2 00

The qualification we have introduced in the above paragraph is another illustration of the difficulties involved in attempting to apply the demand curve to a period of time rather than an instant of time Not only must the other conditions we have listed remain unchanged for the length of the demand period, but the price also must remain unchanged Otherwise the original demand curve is not applicable, and we have a new demand curve which is influenced in some degree by the prices previously prevailing and the amounts purchased at those prices This shows us a source of error always encountered (and not often recognized) by those who attempt to draw up statistical demand curves for agricultural products These statisticians use the average prices and the amounts consumed each year, for a number of years, as points of observation for their estimated demand curve They do, of course, attempt to correct for changes in income and such other factors as they believe to be influencing demand and are capable of measurement Many of them do not, however, allow for the *variability* of prices *within* each year This may be a considerable source of error even if proper allowance is made for all other conditions For example assume that there is one year in which the weighted average price of potatoes is 50c per bushel, resulting from a series of prices throughout the year which ranged from 45c to 55c. In another year of identical conditions, except for price, a weighted average price of 50c per bushel, resulting from prices which ranged between 25c and 75c, might result in either a greater or less total consumption of potatoes, depending upon the number of price changes, their duration, and the public reaction to them.

The Shape of Demand Curves

In most economics texts, demand curves will be found to be represented either as straight lines or as smooth curves which have no "kinks" (sudden changes in slope at particular points) in them These curves are generally drawn smooth either to suit the convenience of the economist who is drawing them or to make the task of explanation to the reader somewhat easier. (Most of the demand curves in this book are so drawn) If we should ever happen to have the good fortune to construct a demand curve which was absolutely accurate for a certain product, however, we should not be at all surprised to find some small kinks in the demand curves for a great many products, and some really sharp kinks in the demand curves for a few products [7]

We can, nevertheless, lay down one fairly general principle about demand curves With certain rare exceptions,[8] the demand curve will always be falling as we move from left to right along the curve This is another way of saying that, in general, under the same conditions of demand, more units of a good will be bought at a lower price than at a higher price, or that a lower price is necessary to induce people to buy more units of a good

There is still much to be said, however, for the contention that collective demand curves tend to smooth out many or most of the "kinks" which are found in individual demand curves The net incomes of individuals and families are not nicely stratified into the frequency tables so neatly drawn by statisticians and tax experts[9] Within each arbitrarily chosen group, the individual or family incomes may change along the scale by very small amounts, perhaps by as little as $10 00, $5 00, or even $1 00 Thus, even if each individual demand curve had a kink in it, the fact that each indifference map may be based on a different income and that consequently the kink will be at a different price point means that a curve of collective demand made up of individual curves may result in the smoothing of the kinks so that the collective curve appears as a smooth curve or straight line

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[7] Certain preliminary studies that I have made of the demand for pork among Southern families with incomes of less than $500 00 per year indicate that at prices above 12c per pound, the demand curve has a very gentle slope, while at prices below this, the demand curve bends downward at almost a right angle, indicating that at some price around 11c they buy about all that they want, and that further declines in price are not much inducement to increase their purchases

[8] The most likely exception is the case of an article which constitutes the major part of a family's expenditure and is considered an "inferior' good by them For example, if a family were subsisting almost entirely on bread or potatoes, a fall in price might cause them to buv less bread or potatoes and spend the remainder of their income on goods which they could not afford before *Cf* Marshall, *Principles,* 8th Ed , p 132

The most important warning that we can take from the fact that there may be kinks is not to project an estimated demand curve beyond the points where we have at least some historical observations to guide us A demand curve is most likely to be smooth in the middle portion, and more apt to have kinks at the extreme ends, particularly the lower end

Elasticity of Demand

The elasticity of demand is a measure of the relative change in amount purchased in response to a relative change in price on a given demand curve The reader will do well from the start to avoid making any connection between the shape or slope of the demand curve and the elasticity of demand, because elasticity depends *both* on the *slope* of the demand curve at any given price *and* on the *position* of the price and quantity point with respect to both the X and Y axes Since elasticity is one of the most important concepts in economics, the reader should attempt to grasp it as thoroughly as possible

There are three different mathematical properties of elasticity, any one of which may be used as the definition, and the others may be derived from it[10]

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[9] For examples, see *Consumer Income in the United States* and *Consumer Expenditures in the United States*, published by the National Resources Committee

Property No 1 Let P represent price and Q quantity. Then PQ will represent total amount spent for the product If PQ remains unchanged after a change in price, then elasticity of demand is equal to unity Unity of elastic demand is the dividing line between elastic demand and inelastic demand If the total amount spent *increases* with a *decline* in price, elasticity of demand is greater than unity, the demand is elastic (PQ increases in value) If the total amount spent *decreases* with a *decline* in price, elasticity of demand is less than unity, the demand is inelastic (PQ decreases in value) A diagrammatic representation is given on page 80 in Diagram 3

This previous property gives us a criterion for determining whether elasticity is greater than unity, equal to unity, or less than unity (even this is a useful thing to know). It does not, however, give us a method of determining a numerical value for elasticity, except for the case where elasticity is unity In this explanation the changes in total amount spent depend upon two things the original price minus the per cent change in price, multiplied by the original quantity plus the per cent change in quantity If we call the small letters p and q, the change in price and the change in quantity, respectively, the equation for unity of elasticity becomes

$$(P-pP)\,(Q+qQ) \text{ or } P\,(1-p)\,Q\,(1+q)=PQ$$

This is the necessary relationship of the two percentages if PQ is to remain constant

Property No 2 This property is a geometrical concept The definition is Elasticity is the proportional change of the abscissa, divided by the proportional change of the ordinate, at any point on the curve, when the changes are small To illustrate this, assume a straight-line demand curve plotted on ordinary numerical scale graph paper (AB in Figure 1, Diagram 6)

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[10] For the full derivation of these relationships, see Allen, R, G D , *Mathematical Analysis for Economists,* pp 255 ff

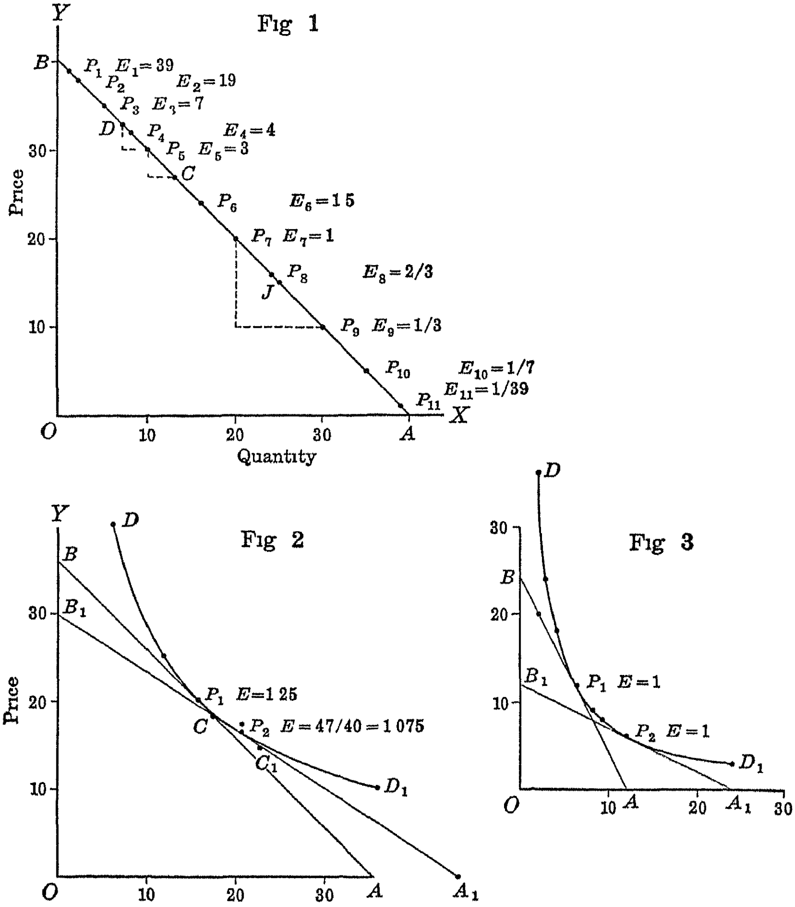

Diagram 6—Elasticity of Demand

Elasticity is then equal to the distance from A to any point P along the demand curve, divided by the distance from B to the same point For example

$$\frac{AP_5}{BP_5} = 3 \text{ and } \frac{AP_7}{BP_7} = 1,$$

and so on The elasticity will be found to be high at the extreme left end of the demand curve It drops to *unity* at the *midpoint* of the line, is less than unity and continually declining at all price and quantity points to the right of the midpoint This condition is universally true for all *straight-line* demand curves * drawn on an ordinary numerical scale On the diagram elasticity has been accurately computed for each of the points labeled P on the line For example, at P_1, E_1 equals 39

It may also be noted that, from any given price point, elasticity is the same in both directions For example, at point P_5 the price is 30c and the quantity purchased is 10 units A drop in price of 3c, or 10 per cent, brings us to point C, at which the quantity purchased has increased from 10 units to 13 units, a 30 per cent increase $\frac{30\%}{10\%} = 3$, which agrees with $E_5 = 3$, as computed by the diagonal ratio division A rise of 10 per cent in price from point P_5, on the other hand, brings us to point D, at which the amount purchased, 7 units, is 30 per cent less than the 10 units purchased at price point P

Notice, however, that while elasticity is the same in both directions from a price and quantity point, it is *not reversible* from one price point to another Thus, at point P_7, elasticity being unity, a 50 per cent decline in price brings us a 50 per cent increase in amount purchased, and we arrive at point P_9 If we had started out from point P_9 to increase the price by 50 per cent (from 10c to 15c), this would bring us back only to point J, at which the amount purchased has decreased by only 16 66 per cent (from 30 units to 25 units), or one third of 50 per cent, elasticity at point P_9 being $\frac{1}{3}$

The most important lesson that we can learn from Figure 1 is to avoid considering the slope of a demand curve on a natural scale as an indication of elasticity The slope of the line AB is constant at 1 to 1 throughout its length, but elasticity changes at every point on the line

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* Except for demand curve for individual seller under pure competition See p 110

The reader can perform a very instructive exercise for himself by choosing other slopes and computing elasticity by $\frac{AP}{BP}$ It is suggested that a good ruler be used and the slope be chosen arbitrarily so that an inch mark hits on each axis It will then be found, if units of one sixteenth of an inch are used, that whole number values of $\frac{AP}{BP}$ can be computed at certain points on the diagonal line

The principles which we have developed about a straight-line demand curve on a natural scale may also be applied, with some limitations, to demand curves which actually do curve on the same scale In Figure 2 of Diagram 6, the demand curve is indicated by the line DD_1 If we wish to determine the elasticity of any point, say P_1, we draw the tangent to the curve through that point Our formula then applies Elasticity is equal to $\frac{AP_1}{BP_1}$ With a curve, however, elasticity is *not* applicable for any considerable distance either way from a price point as it is on a straight line The elasticity at price P_1 is applicable *only as long as the curve and the tangent actually coincide* Since, by definition, a tangent "touches" a curve at only one point, and any change in price causes us to move along the curve rather than the tangent, it follows that the relationship E equals 1 25 (that is, a 1 per cent decline in price will result in a 1 25 per cent increase in amount purchased) is applicable only for infinitesimally small changes in price As soon as we move any distance along the curve, we must draw a new tangent and determine a new elasticity Figure 3 shows the same type of computation for a curve which is of uniform elasticity equal to unity On numerical scale paper, such a curve must be a rectangular hyperbola

This whole explanation shows the difficulties encountered by our apparent unwillingness to use logarithmic scales On double log paper any curve of constant elasticity will appear as a straight line, and the slope of the line will be equal to the elasticity at all points For demand curves which are curvilinear when plotted on logarithmic scales, the slope of the tangent to any curve at any point will be the elasticity at that point

Property No. 3 This property may be derived directly from the definition given for Property No 2 Let us call dq a small change in Q. Then "the proportional change of the abscissa" is $\frac{dq}{Q}$ Then call dp a small change in P, which makes $\frac{dp}{P}$ the proportional change in the ordinate Thus our formula for elasticity becomes

$$E = \frac{dq}{Q} - \frac{dp}{P}$$

Performing the division, we have,

$$E = - \frac{P}{Q} \frac{dq}{dp}$$

The minus sign is introduced arbitrarily into the equation in order to give a positive result (dp must be negative if price is falling), because it is more convenient in economics to think of the elasticity of a falling curve as a positive number Elasticity, then, regardless of the price and quantity units chosen, depends upon both the position of the price and quantity point $\left(\frac{P}{Q}\right)$ and the rate of change $\left(-\frac{dq}{dp}\right)$ The formula given may be written

$$E = - \frac{d\ (\log q)}{d\ (\log p)}$$

This constitutes a generalized proof for the statements made previously about plotting the demand curve on double log paper and reading elasticities directly from the slopes of the tangents

It must still be remembered that our concepts of elasticity will apply only to the extent to which our estimate of the demand curve is correct However, if we use proper methods, there will be no mistake in the *computation* of elasticity, and the only source of error will be in our estimates of the shape and position of the demand curve itself Businessmen and tax experts must have at least a rough concept of elasticity (whether or not they use the word elasticity) when they attempt to decide whether a higher or lower price or tax rate would yield more revenue

CHAPTER VIII

Demand as Seen by the Seller[1]

IN PREVIOUS chapters we have considered demand for a product in general In the present chapter we shall devote our attention to the demand for his product which faces the individual seller In order to do this, we shall have to distinguish between demand under pure competition and demand under monopolistic competition (product differentiation)

Conditions of Pure Competition

Two conditions are requisite for pure competition to exist. (1) *Buyers must be completely indifferent as to which seller they purchase from, as long as different sellers' prices are the same.* Or, to state the proposition in other words, *a lower price is the only element which will lead buyers to prefer one dealer to another under pure competition* (2) *The amount which each individual seller can offer for sale must constitute so small a proportion of the total supply that he, acting alone, is powerless to affect the price by varying the amount which he offers* For instance, millions of bushels of wheat are produced and sold every year, and the individual farmer, even though he ordinarily produced as much as 10,000 bushels a year, could not raise the price of wheat by one sixteenth of a cent a bushel by cutting his production in half or even by ceasing production entirely Nor could he lower the price one sixteenth of a cent if he alone doubled or tripled his production (On the other hand, if *all* farmers acting together should increase or decrease their production by as little as five per cent, the price of wheat would be materially affected)

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[1] This entire chapter is an adaptation of Professor Edward Chamberlin's *The Theory of Monopolistic Competition,* Harvard University Press, 1935 See particularly Chs IV and V The terms 'pure competition,' "monopolistic competition," and "product differentiation' are his

It follows from these two propositions that *under pure competition, the demand for the product of the individual seller*

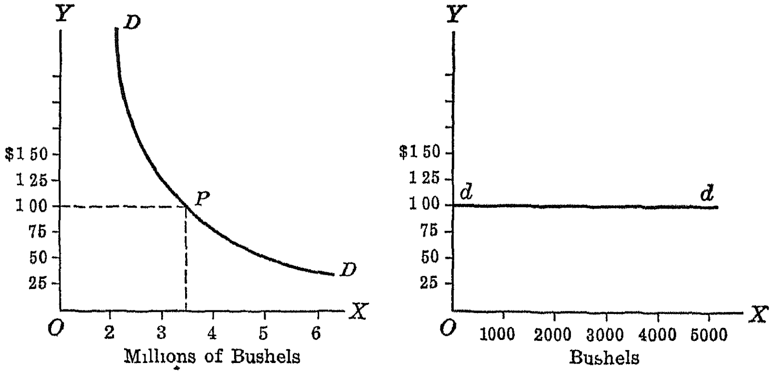

FIG 1—MARKET DEMAND FOR WHEAT UNDER PURE COMPETITION

FIG 2—DEMAND FOR PRODUCT FACING INDIVIDUAL SELLER UNDER PURE COMPETITION

Diagram 1—Demand Under Pure Competition

will be perfectly elastic at the prevailing market price (Graphically, the demand curve for his product will be a horizontal straight line) Under pure competition, if the individual seller raised his price by the slightest amount over that prevailing in the market, he would do no business at all On the other hand, there is no inducement for him to lower his price below that of the market, since he can dispose of his entire holdings at the market price We may illustrate this by a diagram

In Diagram 1, *DD* (Figure 1) represents the market demand for wheat, and *P* is the point on the curve where price happens to be established at the moment In Figure 2, *dd* is the demand curve which confronts the individual producer at the price in the market It is really what we would find if we put a magnifying glass over point *P* The scale in Figure 1 is drawn in millions of bushels A change in amount of a few hundred or even a few thousand bushels will not be sufficient to cause a movement along the demand curve *DD* away from point *P* In other words, although any one individual seller is able to vary his production, he is powerless to affect the price to himself Acting alone, he need not be hindered from increasing his production for fear of "spoiling the market"

Conditions of Monopolistic Competition

We have been talking in the preceding chapter as though shirts, cigarettes, and butter were homogeneous commodities any unit of which was a perfect substitute for any other unit Obviously this is not the case If, for instance, I have been convinced by advertising (whether true or not) that Arrow shirts are of better quality or style than other makes, then my demand for Arrow shirts will be different from my demand for shirts in general For all practical purposes, under these conditions, Arrow shirts are a commodity by themselves, and other makes are imperfect substitutes for them in my mind. At the same price, I will buy Arrow shirts rather than the other brands I might be induced to buy other brands, but only at a lower price that would compensate me for the difference (real or imaginary) between Arrow shirts and the others

If we carry the analysis a step further, we find that even a single brand does not constitute a separate homogeneous commodity for the purpose of drawing a demand curve Even though two stores are both selling Arrow shirts, when we take into account the other services rendered in connection with the sale, we set up the conditions of a separate individual demand for each store's product One store may be more conveniently located than the other, in which case I would trade there rather than in another store even though Arrow shirts were selling for the same price in both places. I might even be willing to pay $2.00 for a shirt in the first store although I know that by going to the less convenient shop I could get the same thing for $1.95. One store may give credit and delivery service and another may not, one store may be cleaner, better lighted and ventilated than another. It may be that one store has the reputation of being a "cheap joint" and I do not like to be seen trading there.

Time utility may also be a factor. For instance, if I run out of my favorite brand of cigarettes at 10 o'clock in the evening, I know that if I wait until morning I can buy two packages for 25c at the chain store. Nevertheless, rather than wait, I will pay 16c for a package at the newsstand. Even a difference in the personality of the salespeople may induce me to prefer to buy the same brand of a good at one store rather than another.

The buyer purchases not merely the article itself, but also the services that go with it. To the extent that the preceding conditions prevail, different stores are really selling products that, though physically identical, are different in the minds of the buyers.

Product differentiation may therefore be defined as any situation which induces a buyer to be willing to pay more for a good bought from one seller rather than from another, or as any consideration which causes one dealer to be preferred to another as a seller of a good even though the price is the same with both sellers.

Demand for Product of Individual Firm Under Monopolistic Competition

We saw above that under pure competition the demand for an individual seller's product is perfectly elastic. On the other hand, when product differentiation exists, the demand curve facing the individual seller will be less than perfectly elastic Because the product has been differentiated from other products in the mind of the buyer, the seller of a differentiated product will not lose all of his business if he raises his price above that charged by other sellers of closely competing substitutes, nor will he be able to take all the business away from the other sellers by dropping his price below theirs[2]

When we remember that utility is nothing more than an idea which exists in the mind of the buyer, we can readily see the connection between product differentiation and the demand curve for the product which is sold by an individual seller For instance, certain people are willing to pay a cent or two more for print butter than for the same butter sold from a tub Others are willing to pay still another cent more for the print butter if it is cut into quarter-pound pieces and the pieces are wrapped separately In other words, the marginal utility of butter to them has been increased by special packaging Wrapping in cellophane may increase the utility of some articles that people do not like to buy after handling by others The reader can supply hundreds of illustrations of this principle from his own experience

Product Differentiation by Advertising

As we stated above, advertising is an extremely important factor in differentiating a product and building up an individual demand curve for the product of an individual seller Some advertising (usually by trade associations) is not of this type, but is designed to influence the demand curve for the product in general. For instance, the sellers of builders' supplies may get together and urge us to "Build a home first," or associated apple growers may confront us with "National Apple Week," and so on. Most advertising, however, is designed to urge us to buy a particular brand or to buy from a particular seller. We are urged to buy "Congoleum" instead of linoleum, "Celotex" instead of insulating lumber, and so on. To the extent that advertisers succeed in their object of making us ask for products by their brand names, the tendency is to establish monopoly conditions in the market for their products. If we get into the habit of asking for a particular brand, other brands of the same product tend in our minds to become imperfect substitutes for our favorite brand. The seller, then, will have a monopoly of this class of people, even to the extent of sometimes being able to maintain the price of his own brand while the prices of other brands are falling, or to raise his price while others are unchanged, which he would not be able to do under perfect competition.

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[2] We should not lose sight of the fact, however, that under both pure competition and product differentiation the demand curve for the individual seller will be more elastic than the demand curve for the industry in general Under pure competition, the individual seller's demand curve is perfectly elastic But even under monopolistic competition, the seller of a differentiated product will lose some business to the sellers of closely competing substitutes as he raises his price above theirs For example, if the price of Fords rises but other cars do not, people need not cease buying cars but may buy other makes, demand for Fords becomes more elastic than demand for cars in general

Similar conditions apply to the clientele of the individual store. To the extent that the store, by services of various kinds, can build up its "good will" so that people become accustomed to go there to trade rather than "shop around," it tends to have at least a partial monopoly of its customers' business. This monopoly may allow it to charge prices which are somewhat higher than its competitors' prices for the same goods, or to sell more goods at the same prices than other stores do.

Demand Curve for Differentiated Product

When product differentiation is achieved, the demand curve for the product of the individual seller will no longer be perfectly elastic at the market price. The seller is now attempting to appeal to a special group of buyers in the market rather than to buyers in general. Some of the buyers will place a high value on the additional "service" that is rendered, so that they will be willing to pay a price for the differentiated product which will be considerably higher than they would have been willing to pay for the undifferentiated product. Others will not value the additional service so highly and so will be willing to trade with this dealer only at prices which are slightly higher than those which they would have to pay elsewhere. Still others will attach no value at all to the service and so will trade with this particular dealer only at prices which are the same as others are charging. Finally, some people may dislike the special service and so would trade with this particular dealer only at prices lower than those prevailing for the undifferentiated product (for instance, packaging tea in "tea balls" may discourage its sale to some people who imagine that the muslin bag imparts a disagreeable taste to the tea, although many others consider tea balls a great convenience).

For the purpose of achieving simplicity in illustrating graphically the effect of product differentiation upon the individual seller's demand curve, we shall have to make an assumption that is contrary to what we ordinarily find in practice, namely, that only one dealer differentiates his product, and further, that he differentiates it only in respect to one particular "service."

In Diagram 2, *OA* represents under pure competition the market price of the undifferentiated product. *DD* represents the individual seller's demand curve under the same conditions, *dd* represents the individual seller's demand curve under product differentiation. That part of the curve *dd* which lies above *DD* shows the various amounts of the differentiated product which buyers would purchase from this particular seller at various prices *above* the general market price of the undifferentiated product.

It should be noticed that the relation of the curve *dd* to *DD* is dependent upon the price *OA* of the undifferentiated product There is no reason why this relation should remain constant if the competitive price changes to a price greater or less than *OA* For instance, assume that the differentiation factor which gives rise to *dd* is that one particular dealer will deliver while others will not If the prices of both the undelivered and delivered products should rise, some of the buyers who make up the demand curve *dd* may decide that they no longer are willing to pay the same *price difference* for delivery service that they did before, and instead of buying from this particular dealer, they buy from others who do not deliver and who therefore can charge a lower price Neither the elasticity of *dd* nor its position relative to *DD* is apt to remain the same when the general market price changes

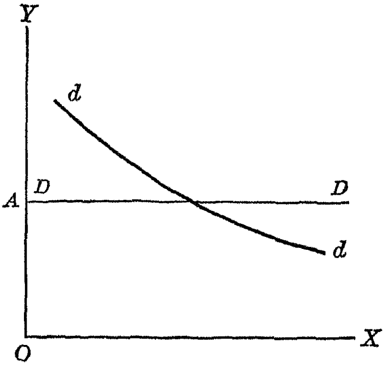

Diagram 2—Individual Producer's Demand Curves Under Pure and Monopolistic Competition

There are certain important consequences which follow from the nature of the individual seller's demand curve and which have a definite bearing upon the determination of the price of a product and of the amount offered for sale Under perfect competition, the individual seller's demand curve being perfectly elastic at the prevailing price, the seller will have no motive to curtail output for fear of the effect on the price he receives[3] But under monopolistic competition, the demand curve which faces the individual seller is less than perfectly elastic, as we have just discovered This means that the seller who operates under these conditions must take account of the effect upon himself which his own actions will have upon the price In other words, he has a monopoly of the market *within the limits of the individual demand curve which faces him.* Such a monopolist may do either one of two things he may decide how much of the product he wishes to sell and then throw this amount on the market for what it will bring, in which case the demand will determine the price (this is the method used in sales at auction), or he may place a definite price upon his product, in which case the amount taken will depend upon the demand for the product at that price (this is the more usual method) Whichever method he uses, as long as the demand curve which faces him is less than perfectly elastic, he is faced with the fact that a larger amount of his product can be sold only at a lower price per unit

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[3] The conditions which will then determine his output are discussed in Chs IX and X

Average Revenue, Marginal Revenue

An explanation of these alternatives confronting the seller is provided by the very useful economic concept of marginal revenue What we have previously called a demand curve might also be called an *average revenue curve,* for it shows the average price per unit at which various amounts of the good can be sold The marginal revenue curve is derived from the average revenue curve *Marginal revenue is the net amount added to total revenue by each successive unit that is added to the number offered for sale* To find marginal revenue, we must do two things first, take the price (or average revenue) at which an additional unit offered will sell, second, from this price we must deduct the loss of average revenue on all previous units, occasioned by the fact that adding this last unit to the amount offered for sale will force all of the units to sell at a lower price than that which the dealer could obtain if he sold the smaller quantity (that is, by offering a larger amount for sale, he will be forced to a lower point on the demand or average revenue curve at which the larger amount can be sold) When this loss is deducted from the price received for the additional unit, the result will be the *net addition* to total revenue occasioned by offering this one more unit for sale, or in other words, it will be the marginal revenue

A numerical illustration will make the principle clearer Suppose the demand curve (average revenue curve) to be such that 40 units of a product sell for $80 00 apiece, and that 41 units sell for $79 00 apiece The amount received for the 41st unit is $79 00 To sell it, however, we must take $79 00 instead of $80 00 apiece for the other 40 units, a loss of $40 00 The marginal revenue of the 41st unit will be $79 00 minus $40 00, or $39 00 This $39 00 will be the *net addition* to total revenue occasioned by trying to sell 41 units instead of 40 We might state the same proposition as follows

41 units	Average Revenue $79 00	Total Revenue $3,239 00
40 units	Average Revenue 80 00	Total Revenue 3,200 00
		Difference (Marginal Revenue) $ 39 00

Diagram 3, which follows, shows an average revenue (or demand) curve and its corresponding marginal revenue curve[4] Note that the marginal revenue curve crosses the zero line and becomes negative at 15 units This is because total revenue is at a maximum when 15 units are sold ($15 \times 7 = 105$) From this point on, the amount received in revenue by selling a larger number of units is more than offset by the loss in average

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[4] For the mathematically minded reader, the relation between marginal and average revenue curves may be expressed as follows

Average Revenue = Selling Price (y) = A Function of the Quantity Sold (x)

Total Revenue = Selling Price times the Quantity Sold = $F(xy)$

Marginal Revenue = Rate of change in Total Revenue

$$= \frac{d}{dx}(xy)$$

$$= y + x\left(\frac{dy}{dx}\right)$$

See also Robinson, Joan, *Economics of Imperfect Competition*, pp 34 ff, The Macmillan Co, London, 1934, a geometrical statement of the relations between marginal and average curves revenue on all previous units In other words, marginal revenue becomes a minus quantity

Relationship of Average and Marginal Revenue

The reason for the divergence of the average and marginal revenue curves should be noted As long as average revenue remains constant with an increasing output, marginal revenue and average revenue will coincide Since under this set of conditions the price (average revenue) is not falling, the addition

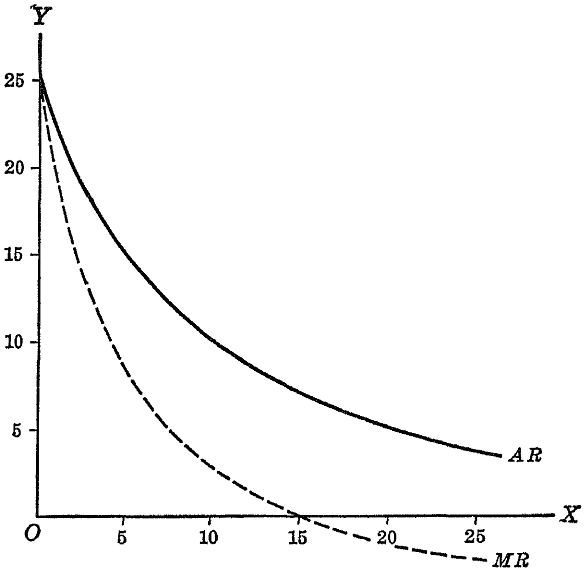

Diagram 3—Average and Marginal Revenue

to total revenue is represented by the average revenue received from selling each additional unit, because nothing need be deducted for loss on the previous units (This condition prevails when demand for the product is perfectly elastic, as in the case of the demand for the product of the individual seller under pure competition)

However, when average revenue is declining, marginal revenue *will always lie below* average revenue This is because marginal revenue is the amount of *net change* in total revenue, whereas average revenue is *total* revenue divided by number of units, so that the effect of this change is "divided out" among the units

To state the proposition differently, average revenue takes into account the decline in price alone Marginal revenue takes into account not only the decline in price itself but also the loss in revenue on all previous units when successive units are sold at a lower price Consequently, whenever average revenue is declining, marginal revenue will always be smaller than average revenue

We shall have repeated occasion to use this concept of marginal revenue in subsequent chapters An application of it may help to fix the principle in our minds In order to avoid the question of cost (which will be taken up later), let us assume that the product is produced entirely without cost. A mineral spring to which people come to get water in their own containers would be a good example The monopolist who owns this spring will try to obtain the greatest possible income from selling the water At what price will his income be the greatest? If the conditions of demand for mineral water are such as shown in Diagram 3, our answer would be at $7 00 per gallon, at which price he sells 15 gallons At this output, marginal revenue and marginal cost[5] are equal (in this special case both are equal to zero)

Before leaving the subject of demand, there are certain very important qualifications which we must bear in mind. In the first place, the various points on a demand curve are *alternative* and are *not successive*. For instance, in Diagram 3 the seller has the option of selling *either* 15 gallons at $7 00 or 20 gallons at $5 00 If the seller goes ahead and sells 15 gallons at $7 00 it does not follow that he could turn around and sell 20 gallons at $5 00, nor even that he could sell an additional 5 gallons at $5 00 After the 15 gallons have been sold we would have an entirely new set of conditions of demand for which a new curve would have to be constructed

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[5] Marginal cost is defined as the additional cost necessary to produce one more unit of the product (see page 54) Since, in the special case above, we have assumed production entirely without cost, marginal cost would also be zero at every output shown in the diagram

To take another illustration, let us suppose you walk into my clothing store prepared to buy either four shirts at $2 00 apiece or six shirts at $1 25 If I sell you the four shirts at $2.00, it does not mean that I could then sell you two or even one at $1 25 The buying of the four at $2 00 has used up $8 00 of your clothing allowance, which may be all that you care to spend for shirts Even were I to drop my price to $1 00, you might regret that you did not wait for the bargain, but you would not necessarily buy any more shirts for the time being

Another important consideration is the time, or length of period, for which the demand schedule or curve is drawn To be strictly accurate, a demand curve cannot apply to any period longer than that in which the conditions of demand remain unchanged In the Chicago wheat pit, for instance, the demand for wheat futures is the same only for an instant of time, since every item of market news and crop reports that comes in over the wires alters the conditions of demand in the minds of the buyers For many commodities, however, we find it convenient to speak of the demand per day, per week, per month, or per year While this is convenient, we should not lose sight of the fact that the longer the period, the more apt is the demand curve to be subject to inaccuracies due to changes in the conditions of demand

True Demand and Estimated Demand

Under imperfect competition, there are really two kinds of demand curves which merit our attention. The first is the true demand curve that actually represents the conditions in the minds of the buyers. Once the price is actually set, it is this curve which will determine the amount purchased by the buyers. (This is the kind of demand curve we have been speaking about in this and in the preceding chapter.)

The second kind of demand curve is the one that represents the idea or estimate of demand which exists in the mind of the seller. It is this idea or estimate which will influence the seller in determining the price he will place on his product. For instance, the true demand for a certain kind of shoes might be such that, if the manufacturer should drop his price 25c a pair, he would sell 10,000 additional pairs and find his total net profit greater than at his present output. But if he *believed* that by dropping the price 25c the buyers would take only 2,000 additional pairs (selling this additional amount would not compensate for the loss of 25c a pair on his present output), he would not lower his price.

This difference between *true* demand and the seller's *estimate* of demand is well illustrated by the experience of certain public utility companies. In some instances they have fought vigorously against rate reductions ordered by Public Service Commissions, only to find after the lower rates were in effect that their net profits were actually increased by the greatly increased sales at the lower rates. If they had known in advance what the true demand curve was, they would have lowered their rates voluntarily and saved themselves the expense of litigation in fighting the rate reductions.

Two Definitions of Commodity

Up to this point we have been using the term *commodity* without defining it. This has been done purposely, because our definition of a commodity is dependent upon the conditions of competition which prevail in the market. For instance, if the good is subject to product differentiation, we may consider the combination of physical product and the services that go with it as constituting a "commodity" in the mind of the buyer Under these circumstances, the commodity would be the physical product as packaged, advertised, serviced, and sold by the individual dealer In other words, the article as sold by an individual seller would be a commodity, while the same or a similar article sold by a competitor would be a substitute for the commodity. If we insist on absolute homogeneity of all units in the mind of the buyer as the test of what constitutes a commodity, we should have to adhere to this definition

However, it must be obvious that certain commodities under the above definition will be much better substitutes for one another than less similar commodities For instance, the same brand of corn flakes as sold by different stores in a community, or different brands of corn flakes as sold by the same store, would all be better substitutes for one another than would any brand of rolled oats sold by any store For this reason there will be conditions of demand and supply that will have great importance in determining the general average price of corn flakes in the community, regardless of the fact that prices charged by the different dealers for different brands may differ slightly When we are thinking of these general forces of demand and supply, we will find it convenient to think of corn flakes in general as being a commodity It is in this sense that the term *commodity* is ordinarily used in common speech To define a commodity in this sense, we should have to say that it was a group of products surrounded by a gap in the chain of possible substitutes[6]

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[6] Robinson, Joan, *Economics of Imperfect Competition,* p 4, The Macmillan Co, London, 1934

The following table will illustrate both definitions

Commodity by Second Definition	*Commodity by first definition*	"X" Corn Flakes as sold by Brown's Corner Grocery
	Close substitutes	"X" Corn Flakes as sold by other dealers in community Other brands of corn flakes sold by Brown's Corner Grocery Other brands of corn flakes sold by other dealers in community
Gap		
	Less close substitutes	Other kinds of dry cereals (Shredded Wheat, Puffed Rice, Rice Crispies, and so forth) (a) Sold by Brown (b) Sold by other dealers
	Distant substitutes	Various kinds of cooked cereals (Rolled Oats, Wheatena, and so forth) (a) Sold by Brown (b) Sold by other dealers
	More distant substitutes	Other foodstuffs (eggs, meat, vegetables, and so forth)
	Still more distant substitutes	Other uses for the consumer's money (clothing, movies, gasoline, and so forth)
	Most distant substitutes	Investment and savings

Unfortunately, the gap in the substitutes for some commodities will not be so clearly marked as it is in the above case However, the principle will usually still apply When we speak of the demand for the product of an individual seller under imperfect competition, it is the first definition of commodity or product that we have in mind Conversely, when we speak of the general market demand for a commodity, it is the second definition of commodity with which we are concerned

This brings us to the definition of a market A *market* for a commodity may be defined as the area in which buyers and sellers of the commodity are in communication with one another, and an area in which exchanges take place There need not be any specific market place in which exchanges are carried on, although these market places do exist for many commodities The area which will comprise the market varies from one commodity to another For some commodities such as wheat, rubber, and the principal metals, the market is world-wide For some other commodities there are local markets that are more or less independent of one another If we are thinking of our first definition of commodity, the market for the individual seller will be limited to the number of buyers who can be induced to trade with him by the prices that he charges or the services that he renders If perfect competition exists, the price of a commodity cannot differ between different parts of the market for any length of time by more than the costs of transportation, if buyers and sellers have full knowledge of market conditions

Classification of Monopolistic and Competitive Situations[7]

Now that we have the concept of product differentiation in mind, it might be appropriate to define and classify the different monopolistic and competitive situations which may exist

1 *Monopoly* is a situation in which there are no close substitutes for the product of a single firm, or, we might say that the monopolist competes with other firms *for the consumer's*

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[7] This section is partly an adaptation from and partly a disagreement with the article by Fritz Machlup, "Monopoly and Competition A Classification, *American Economic Review*, Vol XXVII, No 3, September, 1937

dollar only, and that the substitute products offered by other firms or industries are such poor or remote substitutes for the monopolist's product that he formulates his price policy without considering any one of them individually as a competitor

2 *Duopoly* is a situation in which there are only two firms producing either a standardized product or two products which are only slightly differentiated (Complete or perfect product differentiation would force us to classify the firms as two separate monopolies, rather than as a duopoly)

3 *Oligopoly* is a situation in which there are so few sellers that each of them is conscious of the results upon price of the supply which he individually places upon the market There are several important sub-types.[8]

(a) Oligopoly with standardized products (may be called pure oligopoly)

(b) Oligopoly with differentiated products (a special case under monopolistic competition)

(c) Price leadership is a situation in which one or more large firms base their price and output policies upon the assumption that these policies will directly affect their own returns Alongside these "leaders," there will be a large number of small firms which might be competitive in the absence of the large firms but which either "follow the leader" in setting their prices or at least wait until the leaders' prices are announced and then use these prices as a point of departure in setting their own prices Price leadership may exist accompanied by either standardized or differentiated products

4 Competition with differentiated products (monopolistic competition)

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[8] See Hoffman, A C, Monograph No 35, pp 15–58, *Large Scale Organization in the Food Industries,* Temporary National Economic Committee, 76th Congress, 3rd Session, for a number of examples of actual cases of various kinds of oligopoly and price leadership The reader will find that most of these cases are borderline cases which might fall in one classification or the other The effort to classify them, nevertheless, will well repay the reader's time in attaining a more exact knowledge of what is implied in each concept.

5 Competition with standardized products (pure competition)

The reader should be very careful to distinguish between *pure* and *perfect* competition *Perfect competition,* as defined by various writers, includes the following

✓1 A perfect market, perfect knowledge by both buyers and sellers, and perfect freedom of movement of the commodity and/or of buyers and sellers between different parts of the market

2 Perfectly elastic supply of the factors of production (All units of all factors do not have to be perfectly fluid or mobile. It is sufficient if a certain part of the supply of each factor is able to move in order to achieve the assumed result, that is, that the prices of equal factors will be equal in different uses)

There are four possible ways in which competition of various types may be combined Competition may be

1 *Perfect but monopolistic,* perfect as defined above, but accompanied by product differentiation

2 *Pure but imperfect,* standardized product sold in an imperfect market or produced under conditions of less than perfectly elastic supply of factors to individual firms or to the industry

3 *Monopolistic and imperfect,* product differentiation plus an imperfect market and/or imperfections in the supply of factors of production

4 *Pure and perfect,* standardized product, plus perfect competition as defined above

The above classifications have been inserted here as a convenient reference for the reader The definitions are not exhaustive, but rather consist of a skeleton upon which we shall attempt to hang more meat in subsequent discussion Even so, we must recognize that many of the competitive or monopolistic situations which we encounter in actual life are borderline cases, and the classification in which the industry is placed depends upon the judgment of the observer

CHAPTER IX

Supply of Goods and Market Price

IN THE preceding chapters we have been trying to answer the question, "Why are people *willing* to pay the prices that they do pay for goods?" In this and the chapters immediately following we shall be more concerned with the question, "Why do buyers *have* to pay those prices?" To answer this question, we must examine the motives of the sellers and find out what governs the prices that they charge

Motives of Sellers

As a first assumption, we shall take it for granted that all sellers are trying to obtain the greatest possible amount of net profits, or if profits appear impossible of attainment, that they will attempt to minimize their losses With only some few minor exceptions, it is this motive that animates all sellers In this respect the monopolist is not different from the competitive seller The mere fact that the monopolist may charge higher prices than those that would be charged by competitive dealers is no evidence of a difference in motives It is evidence only of a difference in opportunity The competitors would charge just as high prices as the monopolist does if they were able Only competition among themselves prevents competing sellers from charging such prices Indeed, whenever the circumstances seem to warrant it, we find people who were formerly competitors attempting to combine among themselves in various forms of "trade agreements" to nullify the effects of competition We shall assume, then, that the motive of maximizing profits or minimizing losses is the underlying motive that influences all sellers In order to indicate what price policies sellers will try to follow, our task will be to show what conditions will govern the point of maximum profits or minimum losses

Periods of Supply

There are three different periods of time for which the conditions of supply must be considered separately The first period, called *market supply,* relates to the sale of goods already produced and in existence * The second period is related to the production and sale of goods by means of plant and equipment already in existence and is called the *short-run* period The length of this second period varies considerably from one industry to another The third period, usually called the *long-run* period by economists, takes into account the manufacture of new plant and equipment either to replace existing plant and equipment or to add to present plant capacity It also takes into account the length of time necessary for old plants to wear out, when contraction of output is desired

We shall consider first the conditions of supply in the first period, usually called *instantaneous* or *market* supply For goods which are already produced, there is no absolute minimum price below which all sellers would refuse to sell It is true, of course, that the seller would like to recover what the goods cost him Indeed, he would like to obtain as much above that cost as possible But as we have seen, it is the conditions of demand that determine the amount of a good which will be taken from the market at various prices If the conditions of demand are such that buyers will not take, at the price the seller would like to charge, the full amount of which he would like to dispose, the seller has no choice but to lower his price or fail to sell all that he would like to sell With a given demand, the eagerness of the seller to dispose of all or part of his goods is then the only factor that will govern the price that he will charge in the market for the goods he has on hand

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* Specialized goods such as automobiles, however, will lose value more rapidly than standardized goods

Sellers' Reservation Prices

If goods which are not sold now, at this instant, could never be sold in the future, the prices which sellers would be willing to take would be extremely low With most goods, however, there is usually a possibility of waiting until later in the day or until some future day and disposing of them at the prices which then prevail Consequently every seller will have a *reservation price*[1] for his goods Rather than sell below this reservation price, he will be willing to wait and to take a chance on selling his remaining stock of goods at future prices There are certain general principles governing the upper limit of these reservation prices that we shall now proceed to explain

Usually, the more perishable the commodity, the lower will be the reservation price If the reader will visit one of the large produce markets on a Saturday night, he will find the dealers in strawberries and other perishable commodities offering them for extremely low prices rather than have them spoil over the week end The principle of greatest gain or least loss nevertheless operates here also For instance, if a dealer has 100 quarts of strawberries left, and in the two hours during which the market is to remain open he estimates that he could sell either the entire 100 quarts at 5c a quart, or 60 quarts at 10c, he will choose the latter course Even though 40 quarts would spoil and have to be thrown out, he would be better off receiving $6 00 for the 60 quarts than if he received $5 00 for the entire 100 sold at 5c each[2]

With goods that are less perishable, one of the most important elements in determining the reservation price is the seller's estimate of what he thinks the future price will be Goods which are held over from the present will have to compete with a new supply of goods on the market in the future period Consequently if the seller knows or believes that costs of production for his product are falling, he will tend to place his reservation price lower than would otherwise be the case, since his goods, if held for the future, would have to compete with others produced at lower cost The reverse situation would be true in the case of anticipated rising costs Similarly, if he believes that demand will decrease in the future, his reservation price will be low, if he believes that demand will increase, his reservation price will be high

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[1] As far as I am able to determine, this term originated with Professor H J Davenport, although other authors have used the term *reserve prices,* perhaps with priority

[2] This is another example of a conflict between individual and community economic welfare

Another closely related factor is the anticipated length of time the goods will have to be held before they can be sold at the estimated future price The carrying charges will determine the advisability of waiting for higher prices in the future or of selling at present prices For instance, suppose I hold a stock of wheat, the present price of which is 95c per bushel I am sure that three months from now wheat will sell for $1 00, however, it will cost me 3c per bushel per month in interest and warehouse charges to hold the wheat I would be better off selling now, because, even though I could obtain 5c a bushel more three months from now, it would cost me 9c a bushel to hold the wheat till then If it is anticipated that the future price will be lower, the carrying charges are an added incentive to lower the present reservation price

Still another factor influencing reservation price will be the seller's need for cash If the banks are pressing him to repay loans, or if he has other bills which must be met, he will be more eager to turn his stock of goods on hand into cash Consequently he will have lower reservation prices for the stock than would otherwise be the case

The length of time it will take for a new supply to reach the market will also have a bearing on reservation prices If, for instance, there is an extreme scarcity of a certain agricultural crop, sellers may feel free to hold out for high prices until threatened by the approach of a new harvest On the other hand, if there is a temporary scarcity in a manufactured article that can be quickly reproduced, dealers would do well to dispose of their stocks quickly while the high prices continue

Effect of Monopolistic Competition on Reservation Prices

Product differentiation may act as a partial deterrent to both extremely high and extremely low reservation prices For instance, during times of high prices that appear to be only temporary (for example, in a town surrounded by a flood), dealers may hesitate to exact the last possible nickel from their customers for fear of losing good will On the other hand, when prices in general are falling, the seller of a differentiated product may not drop his reservation prices as rapidly or as far as he would if pure competition existed He will recognize that many of his customers are *held to him by considerations other than price* Furthermore, if the products of his competitors are also differentiated, he will not be able to attract so many buyers to himself by a small cut in his price as would be the case under pure competition

The more perfect the degree of monopoly in a commodity (that is, the fewer and poorer close substitutes there are), the stronger will be the tendency for the monopolist to keep his reservation price high. If there are no adequate substitutes for his product, those people who are deterred from buying by a high price will spend their money for entirely different kinds of commodities Under these circumstances, if the want for the good persists, the monopolist can rely on being able to dispose of his stock of goods eventually, the only effect of a high price will be to slow down the rate at which he can dispose of his stock On the other hand, if there are fairly close substitutes for a commodity and the seller charges a high price, buyers may turn to the substitutes to satisfy their want In this case the seller may run the risk of a permanent loss of business, and he may be threatened with the possibility of having to accept a much lower price for his stock later on

Different Reservation Prices for Parts of Stock

Another element must be taken into consideration in connection with reservation prices, the reservation price for a part of the seller's stock on hand may differ from that for the entire amount For instance, the dealer who is hard pressed for cash might be willing to sacrifice a part of his stock at a very low price, but once his most pressing needs are met, he would prefer to hold on to the balance in hopes of a better market Also, a seller who believes that the price will be higher in the future may not be willing to take a chance on that belief with his entire stock He will therefore sell a part of his stock for what it will bring at present and hold on to the remainder (This is a common practice with certain wheat farmers) The amount of storage capacity which a seller has may be a factor in such a decision, he might be willing to sell at a low price the excess amount which he could not conveniently store, but it would require a higher price to make him part immediately with that amount for which he has available storage capacity

A different reservation price for part of a stock may also be due to the seller's own demand for the product for his own use Thus, if a seller has need for his own product, it may take a higher price to induce him to part with all of his stock than the price at which he might be willing to sell that part of the stock which constituted a surplus over his own needs The price which will be required to induce him to part with that portion of the stock which he could use himself will depend upon the relative intensity of his desire for his own product as compared to the intensity of his desire for the various other products which he might purchase with the money received from selling his own product

While past cost should have no effect in determining reservation prices, nevertheless it does influence some dealers They have paid too high a price for goods in the past and are reluctant to admit that they have made a mistake, or that they have been poor price forecasters Such individuals very often keep a stock of goods on hand for a considerable length of time, refusing to sell for a price below cost Quite often the result of this obstinacy is that they take a greater loss in the end Either the price drops further and they take a greater loss, or, even if the price remains constant, they take a loss in interest and storage charges for the length of time that they hold on to the goods Knowledge of when it is best to take a small loss in order to avoid a greater loss is one of the most important attributes of successful dealers

Supply Defined

With the principles underlying these reservation prices in mind, we are prepared to analyze the conditions of instantaneous or market supply of goods We shall consider first the case of pure competition We may define *supply* as *a schedule of the amounts of a good that would be offered for sale at all possible prices at any one instant of time,* or during any one period of time (for example, a day, week, and so on, in which the conditions of supply remain the same)

Considering the factors mentioned above, we can easily see that most sellers are apt to have different reservation prices Of those sellers who believe that the future price will decline, some will be more pessimistic than others and consequently will have lower reservation prices Of those sellers who believe the future price will rise, some will be more optimistic than others and will have higher reservation prices Certain sellers will be hard pressed for cash, others will not Some

Market Price Determination

The above schedules show the amounts that buyers would be willing to purchase and the amounts that sellers would be willing to offer for sale at the various prices listed in the second column of the table From these schedules we can readily see that the market price for butter will be 30c, since at that price the market will be *cleared* that is, at a price of 30c the amount offered for sale will be *equal* to the amount purchased Two thousand pounds will be exchanged, and there will be left no unsatisfied buyers or sellers willing to do business at 30c

That no other price, under perfect competition would be possible with these particular demand and supply schedules may be easily demonstrated The proof of this is very simple assume, for a moment, a price of 31½c, at this price, buyers would be willing to take only 500 pounds, while sellers would be willing to offer 3,250 pounds for sale All of these sellers, rather than lose a sale, would then cut their price down to their minimum reservation price as indicated in the supply schedule Although buyers would be willing to pay 31½c per pound for 500 pounds of butter if they had to, they would, of course, be delighted to obtain this amount at a lower price Consequently, when they find a number of sellers competing for their order and willing to cut prices to get it, they will hold off in an effort to obtain the lowest possible price for the amount that they wish to buy On the other hand, each cut in the prices by the sellers will attract more buyers into the market who are willing to purchase more At the same time, with each cut in price, some of the amount previously offered for sale is withdrawn from the market as the price falls below the reservation price of any of the sellers This process would continue until the price of 30c is reached At this price there is no further inducement for sellers to cut prices, since they can sell all that they wish to sell (2,000 pounds) at that price.

An analogous proof can be advanced to show that no price below 30c would be a possible market price under the given conditions of demand and supply Assume a price of 29c At this price sellers would be willing to offer only 500 pounds for sale, but buyers would be willing to purchase 3,750 pounds The buyers, rather than go unsatisfied, will start to make offers in excess of 29c While some sellers have reservation prices so low that they would be willing to sell 500 pounds at 29c per pound, they will be delighted to get more if they can, they therefore hold out for the highest offer when they find buyers bidding against each other for their goods Each increase in price offered, however, now attracts more sellers into the market as their reservation prices are reached At the same time, each increase in price causes some buyers to withdraw from the market as the price goes above the amount they are willing to pay This continues until the price of 30c is reached At this price there is no further inducement for buyers to bid higher for the product, since they can buy all that they wish (2,000 pounds) at that price Thus we have shown that, under the given conditions, the price can be neither higher nor lower than 30c Proof can also be shown by a diagram

In Diagram 1, *D′D′* is the demand curve, *SS* is the supply curve, and *PM* represents market price At this price the amount purchased is *AP* and the amount offered for sale is also *AP*. Amount purchased equals amount offered for sale, and the market is cleared Market price is an *equilibrium* price

At any higher price (represented by *RN*), amount purchased will be *BR* and the amount offered for sale will be *BC*. The amount offered for sale is in excess of the amount that will be purchased, and the tendency will be for a lower price to be established *RN* is not an equilibrium price

At any price lower than *PM* (represented by *TU*), the amount that would be purchased is represented by *DT* and the amount that would be offered for sale by *DE* The amount that would be purchased is in excess of the amount that would be offered for sale, and the tendency is for a higher price to be established *TU* is not an equilibrium price.

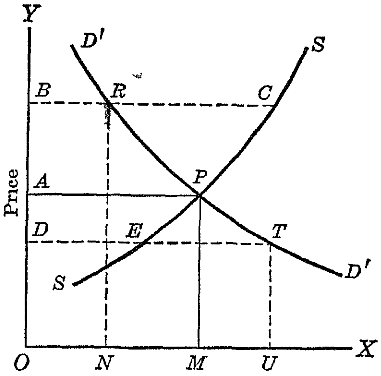

Diagram 1—Assumed Demand and Supply Curves for Wholesale Market 92 Score Butter at Chicago 9 00 A M June 19, 1936

Marginal Buyers and Marginal Sellers

Note that there are two general forces at work in establishing market prices *Competition among buyers tends to force prices up, competition among sellers tends to force prices down* The important individuals in establishing the exact market price are the ***marginal buyers*** and the ***marginal sellers***[4]

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[4] Since each buyer has his own demand schedule, any or all buyers may be marginal buyers with respect to a small part of their purchases That is, they will continue to buy more up to the point where the marginal utility of the good is just equal to the marginal utility of the money they must part with to obtain the last units Or, under indifference curve analysis, they will buy up to the point where the marginal rate of substitution of the commodity for money equals the price ratio If the price rises they will buy fewer units These units are then marginal units in respect to the price, and are as important in determining price as the units purchased by those buyers who would leave the market entirely if the price rose

On the sellers' side the same thing may be true If some sellers have a different reservation price for a part of their stock, the units that they would refuse to sell at a price lower than the market price are marginal units as well as those units offered by sellers who would withdraw completely from the market if the price should fall, The marginal buyers at any given price are those who are just induced to buy at that price and who would refrain from buying if the price were the least bit higher. In order to include the marginal buyers in the market and to sell to them, the sellers must compete with one another to make the price sufficiently low. Since only one price can prevail at one time in a perfectly competitive market for a commodity, other buyers who would have been willing to pay higher prices, if they had to, are benefited by the fact that sellers must put their prices low enough to attract the marginal buyer.

The marginal sellers are the ones who are just induced to sell at the market price, and who would refuse to sell at any lower price. In other words, their reservation price is just equal to the market price. Other sellers whose reservation prices are lower would be willing to sell for less, but, since the buyers must offer a price sufficiently high to attract the marginal sellers into the market, the other sellers (sometimes called the *intramarginal* sellers) are enabled to obtain the same price for themselves.

For the true market price to be established immediately, there must be a perfect market. We have already defined pure competition as a condition in which there is no product differentiation and in which there is a sufficiently large number of buyers and sellers so that none of them individually can dominate the market.

The requirements of a perfect market are that all buyers and all sellers be perfectly acquainted with all the conditions both of demand and of supply. Obviously such a perfect market has never existed and never will. The primary markets for certain agricultural products and minerals do at times show a remarkable degree of close approximation to the conditions of a perfect market. Most markets, and more especially retail markets, are characterized by a large and varying degree of ignorance of market conditions on the part of both buyers and sellers

In the absence of perfect market conditions, the true market price will not be attained immediately In actual practice there will be a few scattered sales at prices either above or below the true market price until, by a process of trial and error, the buyers and sellers discover the true market price at which the bulk of the exchanges will take place

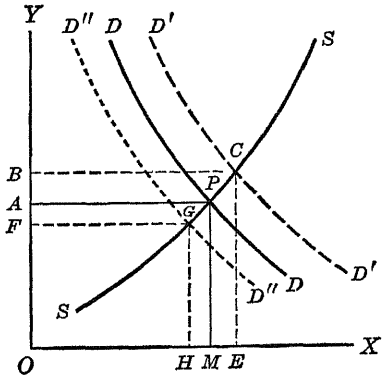

Diagram 2—Changes in Demand

Changes in Demand and Market Price

We must now consider the effect of changes in demand upon price We shall assume, for the moment, that the supply schedule remains absolutely unchanged while demand is changing[5]

In Diagram 2, *DD* is the demand curve, *SS* is the supply curve, *PM* is the market price, and *OM* (equal to *AP*) is the amount sold, as in Diagram 1 two pages back

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[5] This condition is possible under pure competition but *not* under a perfect market Perfect knowledge by both buyers and sellers must assume that sellers would *instantaneously* revise their reservation prices to take account of the change in demand Thus we could not have a change in demand without at least some change in supply Since demand and supply are thus not independent of one another, we have to reserve this question for general equilibrium analysis

Now let us assume that demand increases The new demand curve is *D′D′*, CE is the new market price (higher than *PM*), and *OE* (equal to *BC*) is the new amount purchased (greater than *OM*)

Or, assume that demand decreases The demand curve may then be represented by *D″D″*, *GH* will be the new market price (lower than *PM*), and *OH* (equal to *FG*) will be the new amount purchased (less than *OM*)

It will be noticed in Diagram 2 that, as demand increases, price and quantity exchanged both increase With a given increase in demand, the question—Which increases in greater proportion price or amount exchanged?—is dependent on the *elasticity of supply* In the limiting case of perfectly elastic supply (supply curve a *horizontal* straight line) any increase in demand would result in an increase in quantity exchanged with no increase in price In the other limiting case of perfectly inelastic supply (supply curve a *vertical* straight line) any increase in demand would result in an increased price with no increase in quantity exchanged Within these two limits, we are now prepared to formulate a proposition concerning one of the influences of demand and supply on market price *Other conditions remaining unchanged, an increase in demand has a tendency to increase both price and quantity exchanged, and a decrease in demand has a tendency to decrease both price and quantity exchanged With a given change in demand, the more elastic the supply, the less will be the proportionate change in price and the greater the proportionate change in quantity exchanged The less elastic the supply, the greater will be the proportionate change in price and the less the proportionate change in the quantity exchanged* (The same change in demand with different elasticities of supply is shown in Diagram 3.

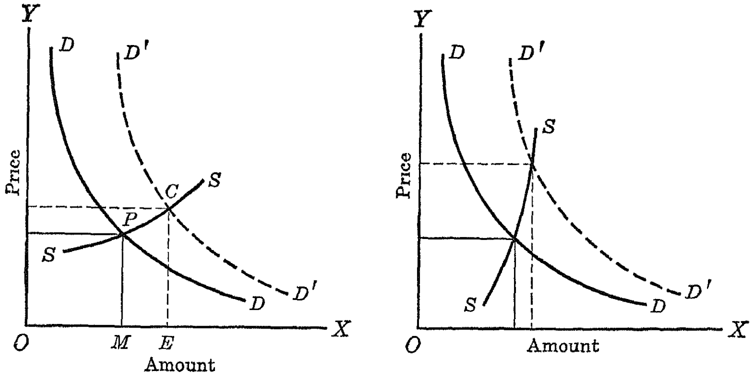

FIG 1 —INCREASE IN DEMAND WITH ELASTIC SUPPLY

FIG 2 —SAME INCREASE IN DEMAND WITH INELASTIC SUPPLY

Diagram 3 —Changes in Demand with Elastic and Inelastic Supply

Changes in Supply and Market Price

We now turn to the effect of changes in supply upon price We shall assume in this case that the demand schedule remains absolutely unchanged while supply is changing[6]

In Diagram 4, *DD* represents the demand curve, *SS* the supply curve, *PM* the market price, and *OM* the amount exchanged, as in the other diagrams

An increase in supply will be represented by a movement of the supply curve to the right to the new position represented by *S′S′*. Note well that an increase in supply is shown by a shift of the supply curve to the *right* on the diagram, and a decrease in supply by a shift to the *left* A movement to the right represents an increase in supply because it shows that at the *same prices* represented on the old supply curve, *greater* amounts will now be offered for sale The mere fact that parts of the curve *S′S′* lie below the curve *SS* should not confuse the reader into calling the movement from *SS* to *S′S′* a decrease in supply The reason why *S′S′* lies below *SS* is that it indicates that for the *same amounts* dealers are now willing to accept *lower prices,* which is, of course, perfectly consistent with the concept of increased supply

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[6] The same limitation to pure competition as was stated in the previous note applies here

S′S′, then, represents the new position of the supply curve after supply has increased, *CE* is the new market price (lower than *PM*), and *OE* is the amount exchanged (greater than *OM*)

A decrease in supply is represented by a movement of the curve to the left The new supply curve is now *S″S″* *GH* is the new market price (higher than *PM*), and OH is the amount exchanged (less than *OM*)

In Diagram 4 note that, as supply increases, price declines, while amount exchanged increases With a given increase in supply, the proportionate decline in price and the proportionate increase in amount exchanged will depend on the elasticity of demand In the limiting case of perfectly elastic demand (demand curve a *horizontal* straight line), any increase in supply will bring no decline in price, but only an increase in amount exchanged In the other limiting case of perfectly inelastic demand (demand curve a *vertical* straight line), any increase in supply will result in a decline in price but no change in the amount purchased Within these two limits we are now pre-

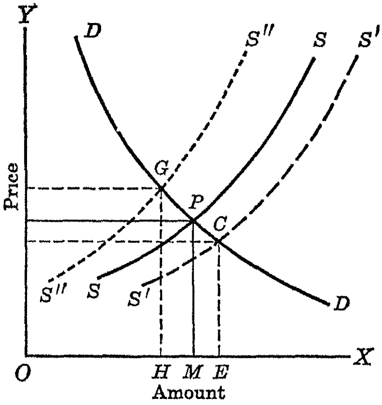

Diagram 4—Changes in Supply

pared to formulate a second proposition concerning the influence of supply and demand on market price *Other conditions remaining unchanged, an increase in supply will have a tendency to decrease price, and to increase quantity exchanged, a decrease in supply will have a tendency to increase price, and to decrease quantity exchanged With a given change in supply, the more elastic the demand, the less will be the proportionate change in price and the greater the proportionate change in the amount exchanged The less elastic the demand, the greater will be the proportionate change in price and the less will be the proportionate change in the amount exchanged*

Market Price When Demand and Supply Both Change

The principles we have developed above may be applied to cases where demand and supply are both changing Combining them, we arrive at a further set of principles

1 *When both demand and supply are changing in the same direction, the tendency will be for each to offset the effect of the other on price and to intensify the effect on quantity exchanged* Thus a decrease in supply tends to raise price and to decrease quantity exchanged A decrease in demand tends

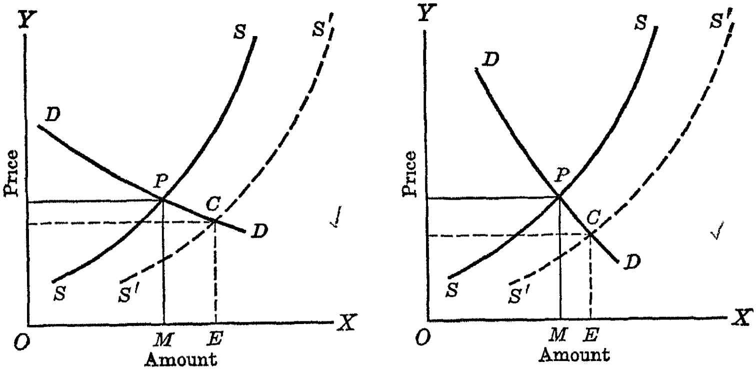

FIG 1—INCREASE IN SUPPLY WITH ELASTIC DEMAND

FIG 2—SAME INCREASE IN SUPPLY WITH INELASTIC DEMAND

Diagram 5—Changes in Supply with Elastic and Inelastic Demand

to lower price and to decrease quantity exchanged When both occur together, they tend to cancel each other in their effect on price, but both will be contributing to effect a decline in quantity exchanged

2 *When both demand and supply are changing in the same direction but one changes more than the other, the curve which changes more will exercise the greater influence, but its effect on price will be less and its effect on quantity exchanged will be greater than it would be if the other curve had remained unchanged* Thus an increase in demand would tend to increase both price and quantity exchanged An increase in supply would tend to decrease price and to increase quantity exchanged If the supply increases by more than the demand, the effect of the change in supply will overbalance the change of demand and price will fall, but it will not fall by as great an amount as it would if supply increased alone The effect of the increase in demand upon quantity exchanged will reinforce the effect of the increase in supply upon quantity, and the quantity exchanged will be greater than if supply had increased alone

3 *When both demand and supply are changing in opposite directions, the tendency will be for each to intensify the effect of the other on price and for each to counteract the effect of the other on quantity exchanged* Thus, an increase in demand will tend to increase both price and quantity exchanged A decrease in supply will tend to increase price and to decrease quantity exchanged When both occur together, both will be contributing to increase the price, but they will tend to cancel each other in their effect on quantity exchanged

4 *When both demand and supply are changing in opposite directions, but one changes more than the other, the curve which changes more will exercise the greater influence, but its effect on price will be greater and its effect on quantity will*

be less than would be the case if the other curve had remained unchanged. Thus, a decrease in demand would tend to decrease both price and quantity exchanged An increase in supply would tend to decrease price and to increase quantity exchanged If the increase in supply is greater than the decrease in demand, price will fall by a greater amount than if supply had increased alone The change in supply being greater, the tendency of the increase in supply to increase the quantity exchanged will overbalance the tendency of the decrease in demand to decrease quantity exchanged, and quantity exchanged will increase, but it will not increase by as great an amount as it would have if supply had increased alone

We have not mentioned the effects of the elasticity of the curve that changes, because no simple general rules can be drawn to cover the situation When demand increases or decreases, parts of the new demand curve may be more elastic and parts of it less elastic than the corresponding parts of the old demand curve For instance, advertising may not only increase the demand for a commodity—it may decrease the elasticity of part of the curve as well, that is, the advertisement may not only convince new buyers that they should buy the product, but it may also convince the old buyers that the product is so good that they should not give up buying the same amount even at much higher prices

We have listed in the following table several possible changes that may take place in supply and demand and the subclassifications of different elasticity where applicable It will be a useful exercise for the reader to try to apply the rules we have given in this chapter to these cases and answer the questions, "What will happen to price?" and "What will happen to quantity exchange?" in each case Or, the reader may draw the diagrams representing some of the cases and find the answers to the questions from the diagrams

POSSIBLE CHANGES IN SUPPLY AND DEMAND

1 Demand increases, no change in supply
    (a) Supply elastic
    (b) Supply inelastic
2 Demand decreases, no change in supply
    (a) Supply elastic
    (b) Supply inelastic
3 Supply increases, no change in demand
    (a) Demand elastic
    (b) Demand inelastic
4 Supply decreases, no change in demand
    (a) Demand elastic
    (b) Demand inelastic
5 Demand and supply both increase equally
6 Demand and supply both decrease equally
7 Demand and supply both increase but demand increases more than supply
8 Demand and supply both increase but supply increases more than demand
9 Demand and supply both decrease but demand decreases more than supply
10 Demand and supply both decrease but supply decreases more than demand
11 Demand and supply both decrease but supply decreases less than demand
12 Demand increases but supply decreases more
13 Demand increases but supply decreases less
14 Demand decreases and supply decreases equally
15 Demand decreases but supply increases more
16 Demand decreases but supply increases less

CHAPTER X

Various Forms of Competition and Market Price

WE SHALL reserve a full discussion of imperfect competition for consideration in connection with cost of production, but it will be advisable now to point out some of the peculiarities of a market in which product differentiation exists

Market Price Under Pure Competition

In a purely competitive market,[1] buyers will have no preferences between sellers except as to prices charged Any seller who chooses to cut his price below that of the others could attract all of the buyers to himself. However, even if his reservation price should be below the market price, he will have no inducement to drop his own price below that of the market since it is one of the conditions of pure competition that any one individual seller can dispose of his entire stock without depressing the market price As we have seen in the last chapter, sellers take advantage of the competition between buyers to secure the highest price that they can, buyers take advantage of the competition between sellers to secure the lowest price that they can Movements in the supply curve will occur only as all, or a great number, of sellers alter their reservation prices;

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[1] Chamberlin, E, *The Theory of Monopolistic Competition*, pp 16 ff, Harvard University Press, 1934

movements in the demand curve will take place only as all, or a great number, of buyers change their minds as to the amounts they would be willing to take at various prices. Inelasticity of demand will be an important factor in causing market price to fall rapidly only as a large number of sellers increase the amounts which they offer for sale. As far as any individual seller *acting alone* is concerned, he may take it for granted that demand is perfectly elastic for all that he cares to offer for sale *at the existing market price*. In short, under pure competition, any seller who puts his reservation price above the market price will sell nothing at all; on the other hand, since his product is identical with that of the marginal sellers, there is no need for him to accept a lower price than all other sellers are willing to take.

Market Price Under Monopolistic Competition[2]

In the market for a commodity that is subject to product differentiation, a very different situation exists. Competition is no longer purely on a price basis. Buyers are now buying a combination of the physical product and the "services" which go with it (location of store, packaging, trade-mark, personality of salespeople, and so on). If we take an assumed market price for the standardized product as a point of departure for the purpose of measurement, we find that different buyers are willing to pay various prices above the assumed base, depending on the estimate that they have of the value of the services of the dealer selling the differentiated product. Furthermore, as between two differentiated products (that are very close but imperfect substitutes for each other) some buyers will prefer the product sold by dealer *A* to that of dealer *B* if both are offered at the same price, others who consider *A*'s product much better than that of *B* will be willing to buy it even at a higher price The amount of difference which these buyers will be willing to pay in order to buy from *A* rather than from *B* will vary from one buyer to another, depending on their individual estimates of the superiority of *A* as a dealer At the same time there will be a different group of buyers who consider *B*'s product to be superior to that of *A* Some of these will buy from *B* rather than from *A* if both *A* and *B* are charging the same price, and others will be willing to pay various higher prices in order to trade with *B* rather than with *A* Still another group of buyers may be entirely indifferent as to *A* and *B* Whichever dealer is selling at the lower price will get their business, and if both dealers are selling at the same price, it will be a matter of chance with which dealer they trade It should be noted that these differences between the two products need not be real differences subject to any sort of exact measurement All that is necessary for them to affect the demand curve is that they create a preference in the mind of a buyer, whether such preference is logical or not

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[2] Note that while we have paid some attention to the differentiation based on persuasive selling, most of the conclusions of this chapter would still be valid for a perfect *market* with differentiated products. Even with perfect knowledge on the part of buyers, they may still have "a scale of preferences" between differentiated products.

Let us take a specific example Which is the better motor car, Ford or Chevrolet, and exactly how much more is the better one worth in terms of dollars and cents? If the reader will go to the Ford dealer, the latter will gladly supply him with a long list of features in which the Ford is alleged to be superior, and if he will go to the Chevrolet dealer, he will be supplied with a similarly long list of features in which the Chevrolet is said to excel Even two automotive engineers might be in disagreement as to the relative mechanical merits of the two cars, since it is not only a question of the merits of each feature in itself (six cylinders versus eight cylinders, different springs, oil and gas consumption, and so on), but there is also a question as to the importance to be attached to each feature in making a final comparison between the cars as a whole Even if the two engineers were in agreement as to the relative merits of the two cars, they might find it a difficult task to decide what the difference was worth in dollars and cents In influencing the demand for cars, however, it is not the absolute truth or falsity of the dealers' claims that is important so much as the way in which these claims *impress the minds of the different buyers* Even if the mechanical merits of each feature could be objectively established, the different features would still be of different importance in the minds of various buyers For instance, a man who plans to drive only 5,000 miles a year will not attach as great importance to low gasoline consumption as a man who will drive 50,000 miles, but he might attach much greater importance to the ability of the motor to start readily after long idleness in cold weather When it comes to features of design and appearance, the preference for one car over the other will be entirely a matter of individual taste Tall, thin men will be concerned about leg room, short, fat men will want wide seats Features of appearance that may be considered beautiful by one buyer may appear cheap and ugly to another Enough has been said to indicate that there will be one group of buyers who consider Fords better than Chevrolets and who would buy Fords if they had to pay more for them The actual differences which buyers in the group would be willing to pay for a Ford, rather than buy a Chevrolet, will vary with the mental estimate of each individual as to the superiority of the Ford There will be another group of buyers who will prefer Chevrolets, and different individuals in this group will be willing to pay various higher prices for a Chevrolet than for a Ford

Buyers can be induced to leave one of these groups and to buy the car that they do not prefer only as the difference in price between the two cars is greater than the difference in value between the two which exists in the mind of the buyer This, then, constitutes an important difference between price-making by individual sellers under product differentiation and under pure competition. For, as we have said, under pure competition any seller who offers a lower price than his rivals will attract all the buyers to himself. Under pure competition the demand curve for the product of the individual seller is perfectly elastic at the market price. Under product differentiation the demand curve for the product of the individual *will be less than perfectly elastic at any price*. This will have an important bearing on the reservation prices which sellers will charge.

Under pure competition, we saw that each seller set his reservation price and then was able to obtain as much above this as the market was willing to pay, the actual market price being fixed at the reservation prices of the marginal sellers. Under product differentiation, the reservation price becomes the actual price at which the goods are sold.[3] That is, the seller sets a price on his product, then the buyers decide how much they will buy at that price. Instead of being able to sell all or as much of his product as he wishes at the existing market price (as would have been the case under pure competition), the seller is now faced with the fact that the price which he sets will determine the amount that he individually can sell. The seller of a differentiated product is really a monopolist in the determination of his own price, but the existence of a very close substitute for his product exerts a very sharp limitation on the amount which he can sell at any given price he decides to set.

If two differentiated products are close substitutes for each other, we can draw up a complete demand schedule for one of them only if we assume that the price of the other remains fixed and will not change during the period for which the demand schedule is constructed. Thus, if we assume a price of

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[3] The reservation price is also likely to be higher than under pure competition, since under monopolistic competition the seller will take declining marginal revenue into account.

$700 00 for the Chevrolet Tudor Sedan, we might draw up a schedule of the number of Ford Tudor Sedans which could be sold at various prices ranging from $800 00 down to $500 00 (assuming, of course, that we can read the buyers' minds) As the price of the Ford is set lower, each price from $800 00 on down will attract more buyers away from Chevrolet, since the difference in price between the two cars acts to overbalance the difference in estimate of value which exists in the individual buyers' minds As the price of the Ford drops, not only will more buyers be attracted away from Chevrolet, but a new source of demand will appear That is, there will be some buyers who would not have bought either car at the previous higher price who now begin to feel that at various lower prices they can afford to buy a car If we were attempting to draw a demand schedule for Chevrolets, we should have to reverse the above process and assume a fixed price for the Ford

Now let us assume that Mr Henry Ford has given you the job of determining the best possible price at which he can dispose of all or a part of the cars he happens to have on hand, let us say that you are trying to get rid of the remaining cars of this year's model before the new model comes out Disregarding the cost of production, you are to decide at what price the number of cars sold times the price per car will yield the greatest gross income Let us see what your problem would be

Determination of Market Price of a Differentiated Product

First, to make the problem as easy as possible, we will assume as we did above that the price of Chevrolet will stay fixed at $700 00 and that you are able to read the buyers' minds and to draw up the true demand schedule based on that assumption Now then, starting at $800 00, each possible price $5 00 lower that you might set will attract more buyers away from Chevrolet, plus new ones, and enable you to sell more Fords.

On the other hand, each $5.00 decline in price will mean a loss of $5.00 per car on all the Fords that buyers would have bought anyway at the next higher price. What will be the best price to set? You would solve this problem by finding the price at which marginal revenue was equal to zero (see pages 118 and 119)—that is, the price at which the gain in revenue occasioned by selling more cars would be just exactly balanced by the loss in revenue occasioned by accepting a lower price on the other cars which could have been sold at the next higher price. If we were able to take our assumptions for granted, the problem would be relatively easy.

In actual practice you would not dare to make these assumptions.[4] If the price which you set according to the above principles should happen to be one that would draw a large number of buyers away from Chevrolet, there is no reason why you should expect the Chevrolet manufacturer to keep his price at $700.00 and stand idly by while you take customers away from him. He would most likely retaliate by cutting his own price in order to retain these customers. In this event you might find yourself selling no more cars, or only a very few more, at a lower price, than you could have sold at a higher price, and the loss in revenue on the cars which you do sell will be a dead loss uncompensated for by any gain in volume of sales. The only factor that might deter Chevrolet from making such a cut would be the fear that you might fight back by cutting your price still further, and the distaste which the Chevrolet Company might have for engaging in a costly "price war."

There may be, however, a price that you might hit upon, which, although it would take some business away from Chevrolet, would not take away enough to make it worth their while to cut their price to meet yours That is, if the price which you happen to set should take away from them only one or two thousand buyers, they might be willing to lose these buyers rather than cut their price $10 00 per car if they believe that they can still sell 100,000 Chevrolets at the old figure of $700 00

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[4] Particularly because this is a situation of duopoly as well as product differentiation.

The achievement of such a price might be much more feasible in the field of low-priced cars than would appear at first sight For the purpose of simplicity, we have been tacitly assuming above that there was merely a two-sided competition between these two cars But actually, of course, Plymouth, Dodge, DeSoto, Pontiac, and others will be competing at various price differences Consequently, if the increased business which you do at a certain low price is drawn somewhat equally from all of them, the loss to any one firm might be so negligible that they would not care to retaliate by cutting their prices On the other hand, should you appear to be able to sell a very great number of cars at a low price, you have no assurance that one or all of them will not try to imitate you and thus cut into your volume of sales

Now, if you wish to keep your job with Mr Ford very long, there is another factor which you must take into consideration We have been assuming that you are trying to dispose of as many of the remaining cars at the best possible price that you can before the new model comes on the market But you cannot afford to neglect the fact that the price you set on the remaining cars may have a very important influence on next year's market for Fords If, by setting a low price on this year's cars, you can sell more of them to people who would not otherwise have bought Fords at all, this may be all right But if this low price merely induces some persons to buy Fords now who would otherwise have waited and bought the new model next year at presumably a higher price, the gain will not be nearly so great It might prove to be the case that you would have been better off selling fewer of the present models at a higher price and thus not decrease next year's business

Another factor enters in this same connection If you make a regular practice of drastic price cuts at the year's end, a large number of buyers may decide that it is to their advantage to wait for these low prices, and you will not sell very many cars at all at the full new car price This is an example of negative time preference in buying (See Chapter XXIII)

Finally, we must remove one other assumption We assumed at the start that you were able to draw an accurate demand schedule, provided the prices of other cars remained fixed Of course, this will not be the case You can assume with reasonable certainty that you will sell more cars at a lower price than at a higher price, but exactly how many more you can discover only by experience Furthermore, the experience of one year will be only the roughest and most inaccurate guide as to what would happen another year If you lower your price, only to find that your sales are not so great as you anticipated, it will not ordinarily be possible to restore your price and still sell the same amount that you could have sold had you held to the higher price in the first place The points on a demand curve are alternative, not successive You will be still less able to raise your price again if a competitor has cut his price to meet your reduction

Peculiarities of Market Price of Differentiated Products

What may we conclude from all this discussion? First, that the elasticity of demand for a differentiated product is less than the elasticity for the individual seller under pure competition, because the various differentiated products are not perfect substitutes for one another. Second, that if there are only a few sellers, each will have to take into account the effect of his price policy on his competitors as well as the possibility of retaliation Third, that the seller of a differentiated product must pay attention to the long-run effect of a temporary market price policy, while a purely competitive seller need not do so Finally, that once a price has been established for a differentiated product which appears to yield a volume of sales that is at all satisfactory, the seller will be extremely reluctant to change such a price, since he does not know accurately what his sales would be at a different price, nor what retaliation might be expected from competitors

The regular practice of department stores and other retail stores in holding "bargain sales" at cut-rate prices is no exception to the above rules, but rather a recognition of them It will be noticed that the most extreme slashes in price are on clothing and other articles with a very important style factor, that is, goods which, if not sold this season, are not likely to be sold at all Moreover, the extreme reluctance of many women to be seen in "last year's styles" is a reasonable assurance that the bargain sale this year will not materially injure next year's business The statement that the store has "overbought" an article is often an ambiguous one It is true, of course, that they bought more than they could sell at the original price which they placed on the article, but the real error may not have been in *buying* too much, but in *placing too high a price* on the article at the beginning so that they now have so much left on their hands that they are forced to "sacrifice" it to make room for other goods

Usually stores are very careful to indicate in their advertising the reason for the "sale" This is done not only in an effort to convince the buyer that these actually are "bargains" but also to acquaint her with the fact that she need not expect to find these same low prices after the "sale" is over It is thus hoped that sales resistance to higher prices on "regular-priced merchandise" will be overcome

The practice of many grocery and other retail stores that handle a wide variety of goods of cutting prices on certain standard articles as "price leaders" should not be confused with ordinary price policy It is the hope of the storekeeper that these price leaders will attract people into the store who will also buy other goods on which the price is not cut Properly speaking, the use of price leaders is a form of advertising and not a price policy With some exceptions, competitors usually do not try to compete on articles used as price leaders, but they cut prices on different commodities as price leaders of their own

CHAPTER XI

Large-Scale Organization, Combination Monopoly, and Unfair Competition

SOME authors treat large-scale business organization and combination as if the terms were synonymous, and others even include monopoly as if its meaning were not different from the other two While there may be some few attributes which are characteristic to all three, we shall keep our thinking much clearer if we take the trouble to distinguish carefully between them and to note the principles which are peculiar to each Large-scale organization may come as the result of combination or it may be simply the result of the steady expansion of a previously small firm Large-scale business may be of any degree of competition or monopoly Nearly perfect monopolies may exist in an enterprise of any size and they may or may not be the result of previous combination of firms

Economies of Large-Scale Production

Ability to take full advantage of the economies of specialization and division of labor We assume, of course, that the large firm has a big enough market either to absorb its entire capacity of output or to keep it running at a reasonably high percentage of capacity most of the time The large firm, then, will be able to keep each man working at a highly specialized task This allows for the development of greater skill and speed at the particular operation and avoids the loss of time occasioned by changing from one operation to another.[1]

Ability to use specialized machinery. In firms selling a large output of a more or less uniform product, it becomes possible to do nearly every operation on a machine developed to perform that particular operation in the most rapid manner since the machine cost per unit of output will be small when total machine cost is spread over a large output. Even if such machinery is not yet in existence, a very large company can often afford to hire engineers to design it. In some industries which involve very few operations (such as papermaking and sugar refining) the basic machinery may be so costly that a firm must operate on a fairly large scale to use machinery at all.

Ability to pay large salaries for men of special ability. This enables the large firm (if it has the judgment to select them) to hire the best men for the "key positions": engineers, division superintendents, sales managers, and so forth.

Ability to obtain lower prices through quantity buying. Almost all raw materials are lower priced when purchased in large quantities, and freight rates on materials are always lower in carload lots. Another economy which might be classed either with this or with the previous one is the ability to hire a purchasing agent and to hire experts to test materials purchased.

Ability to utilize by-products. Small plants often find it necessary to throw away low-valued by-products, or even to hire someone to carry them away. Large plants, on the other hand, may have a sufficient quantity of the by-product to enable them to set up a separate plant to process it into some readily salable product that will show a profit on the operation.

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[1] See page 213.

Ability to conduct experimentation and research. Large firms can afford to set up elaborate and expensive experimental and research departments to develop and test new products and new methods of manufacture. The Westinghouse and General Electric Laboratories are conspicuous examples of this. For a small company a few costly experiments which yielded negative results would mean bankruptcy. Large companies are able to hire some of the foremost scientists and to conduct a tremendously large number of individual experiments. The law of averages is almost bound to give them a few profitable results which will overbalance the cost of the failures. The experimental method, when it is sufficiently well financed, may save many of the costs of the "trial and error" method. The DuPont Company, for example, built a "pilot plant" in order to solve most of the problems of manufacture before building their large plant to manufacture their new "Nylon" textile fibre.

All of the economies we have listed are peculiar to *large-scale* business enterprises. If particular combinations or highly monopolistic firms happen to exhibit some of these economies, it will be because they are also large-scale businesses, and not because they are combinations or monopolies. Combination of a number of previously small business units may result in a large-scale business which is able to achieve the economies of large-scale production, but it is the size of the business and not the mere fact of combination which is responsible for the economies. We shall find later some economies which are peculiar to combinations and monopolies.

Disadvantages of Large-Scale Business Organization

Extremely susceptible to business cycle. The dependence on volume of output renders the large business subject to heavy losses in business depressions when volume of sales declines. Large fixed investments mean mostly large fixed costs which cannot be contracted when output has to be contracted The high-salaried "key men" will have to be retained if the organization is to be kept intact, their salaries also tend to become part of the fixed cost

Comparatively inflexible Large-scale businesses find it necessary to develop routine procedure to handle most of their minor business decisions and business practices This very routine places them at a disadvantage in handling many business opportunities which are open to smaller and more flexible firms In manufacturing, the large firm is seldom equipped to handle small orders, particularly if the specifications are even slightly different from their standard products Consequently, in business declines when large orders are not forthcoming, the large firm may be forced to shut down or curtail output seriously while smaller firms may be able to keep going through their adaptability to meet the needs of particular small customers In retail selling, opportunities to buy distress lots of merchandise and to resell them at a profit often appear Large firms may be forced to decline many of these opportunities because the quantity of goods is small and because it may not be wise policy for them to whet their customers' appetites for goods at bargain prices which they cannot supply in sufficient volume to meet the demand

The extremely large investment in specialized machinery means a tremendously heavy cost even to improve and modernize the product, to say nothing of changing from the manufacture of one product to another Thus, the large firm tends to develop an "inertia" which may tend to keep it manufacturing the same product in the same way, sometimes for a considerable time after the public taste for the product has changed

Limitations of large-scale management This is probably the chief disadvantage of large-scale business The larger the business, the more the authority that must be delegated to minor officials, which leads to the "dilemma of management"[2] Either great reliance must be placed upon the judgment of minor officials and hence high-salaried men must be hired, or many arbitrary rules must be laid down for their guidance thus tending to increase the inflexibility criticized above

Economies of Combination

As mentioned before, to the extent that combination results in large-scale business, it will be capable of effecting the economies (and will be subject to the disadvantages) of large-scale business These are listed above and we shall not discuss them further There are, however, certain economies and certain disadvantages which result from the combination of existing business firms There are two major types of combination, horizontal and vertical *Horizontal combination* is the combination of two or more firms in the same stage of the industry (for example, a combination of a number of blast furnaces making pig iron) *Vertical combination,* sometimes called *integration,* is the combination of two or more firms in successive stages of an industry (for example, the combination of an iron mine, a blast furnace, a steel plant, and a structural steel works)

Horizontal Combination

Elimination of cross-hauling When two or more firms located in different geographic areas are combined, a considerable saving in freight costs may be achieved by supplying the demands of each region from the factory closest to the customer. For example, if two formerly competing firms, one located in Chicago and the other in New York, are combined, the New York firm will no longer ship goods into Chicago and *vice versa,* instead, the Chicago factory will supply the Middle Western market and the New York factory will supply the Eastern states Any firm which is large enough to set up branch factories at strategically located points can, of course, achieve the same economies Even a large firm, however, may find it more convenient to buy out, or merge with, an existing firm in a distant territory rather than to set up a new plant in that locality to compete with the old firm

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[2] See page 214

Elimination of duplicate selling expenses When two firms are combined, it is no longer necessary to send two salesmen to call on the same customer since one can now do the work This does not necessarily mean, however, that if two firms each having the same sized sales force are combined, only one-half of the previous number of salesmen will be needed Each firm may have some customers on which the other has not been calling The sales force can be curtailed only to the extent that duplication has previously existed The combined firms might be found to have, say, three-quarters of the previous total sales force, each salesman covering a smaller territory more intensively Similar economies may be achieved in advertising expenses to the extent that the two firms previously competed for the same market

Elimination of other duplicated costs The services of purchasing agents, accounting departments, research departments, and other nonmanufacturing departments may be combined and a considerable reduction in personnel achieved by the combination of two previously competing firms Usually the greatest proportionate reduction can be achieved among the higher salaried executives in these groups The total amount of detail work to be done by clerks and other minor employees may be nearly as great for the combined firms as it was when the two were separate

Economic utilization of capacity When a fairly large number of plants are brought into a single combination, it may be found that lower costs can be achieved when demand is slack by operating some of the plants at their optimum, or least cost, output and keeping others shut down entirely, rather than to run all the plants at reduced output as would be the case under competition It will generally be found too that some of the plants have lower unit costs at optimum capacity than others When this is the case, production can be confined to the lower cost plants in dull times, the highest cost plants being operated only at such times as the price of the product warrants

All of the above economies of combination are predicated upon the assumption that an actual operating merger is formed If the combination is a mere financial or ownership arrangement and the identity and operating set-up of the existing firms is retained intact, naturally none of these economies will result The actual operating merger achieves economies which may be passed on to the public in the form of a lower price of the product if the company so desires, or if circumstances force it to do so The mere ownership merger, without an operating merger, may simply be a means of avoiding price cutting and maintaining excessive cost structures

Disadvantages of Horizontal Combination

Product differentiation as a limit to the possible economies of combination When an intensive effort has been made to create demand for particular brands of a product, the mere fact that the two or more companies combine is not apt to make the customers willing to shift from one brand to the other If one company has been spending millions of dollars to convince its customers that "dated coffee is the only fresh coffee" while another has been spending similar sums to extol the merits of "vacuum-packed coffee," and the two should happen to combine, it might prove considerably embarrassing to retract the statements of one or the other and package coffee in only one way in order to achieve sales economy If the separate brands are to be maintained, the selling economies achieved by combination may be negligible or nonexistent Even where the products are in different price classes, and so somewhat less directly competitive, this limitation persists It will be noticed, particularly in the larger cities, that General Motors has different sales agencies for every one of its makes of cars This is probably because they have found that a dealer who does not care whether he sells a customer a LaSalle or a Buick may lose a sale to the dealer who is energetically selling nothing but Packards In the smaller towns the savings in combining salesrooms and repair departments are proportionately great enough to offset this, and one dealer often handles two or more makes of General Motors cars

Essential and important differences in the actual nature of the product (as distinct from mere differences in brand names and packaging) may make it difficult to achieve the operating economies of combination as well as the selling economies It will not be possible to shut down some plants and keep others running at best capacity unless a thoroughly standardized product is made by all plants

Possible hazards in eliminating duplicate employees In spite of the statement that "a corporation has no soul," business firms are somewhat like human beings It is not always possible to cut two of them up and take parts of each and to reassemble an artificial being that is as healthy as either was before Two business firms may each be moderately successful as the result of the personnel which each has, without the relative merits of the different minor executives being particularly apparent It is entirely possible that the poorer rather than the better men will be retained for most positions when the two companies combine Many companies have some inefficient employees who are retained in their positions simply because of their friendship or relationship with the controlling interest It is these very men for whom the "boss" is apt to say the strongest word when the consolidation takes place Unless the favorites happen to be in exactly corresponding positions in the two firms, the net result may easily be the retention of the inefficient and the firing of the efficient Each firm may have been able to carry its own "deadheads," but the combination may sink under the combined weight of the two groups Some other firm may then take on the good employees who are discharged and put the combination out of business This is an extreme example, nevertheless, we have seen many a combination of metropolitan newspapers fail which tried "to retain the best features of each"

Economies of Vertical Combination

Continuous supply of raw materials and other essential contributory products. The firm which is integrated as far back as the source of its materials can always be assured of the materials it needs to fill orders Particularly in the metal trades, when rush business follows a period of slackness in which mines have been shut down, serious shortages of raw materials occur In such times the firm without its own source of supply may have to pay outrageous prices for raw materials, and even high prices may not be sufficient to insure prompt delivery when other firms have also ordered Semi-finished products and parts may likewise have occasional periods of scarcity for the firm which buys rather than controls them "Bottlenecks" all along the line may be eliminated by a well-planned chain of plants in the different stages between the raw material and the consumer

Elimination of selling costs at intermediate stages. In the integrated firm there are no selling costs between the raw material producer and the first processor, between the first processor and the second, and so on, as would have to be the case were these successive stages of production separately owned The cotton in your shirt was probably bought and resold at least ten or twelve times in some form or other before it reached you On the other hand, the iron ore, coke, and limestone in structural steel are often sold only twice, once to the building contractor and then to the buyer of the building Selling and advertising may be dispensed with all along the line by vertical combination

The claim is often made that the advertising of parts and materials directly to the consumer helps the manufacturer to sell the finished product At best such advertising probably has only a limited effect and is important only when the finished product, or the parts or raw materials, are a comparative novelty to the public It is hard to imagine today a customer who is torn between the purchase of two makes of cars because one uses his favorite brand of ball bearings and the other uses a certain brand of piston rings Of course, the integrated firm can, and sometimes does continue to advertise the parts manufactured by its component firms, but it is remarkable how little of such advertising it seems to find necessary General Motors runs an occasional advertisement for "Fisher" bodies, few for "Delco" starting, lighting and ignition, and almost none for any other part which is manufactured by its subsidiary companies

Co-ordination of manufacturing processes Where a number of plants are united in a vertical combination, each can be so organized as to meet best the requirements of the succeeding stage of production For example, an independent parts manufacturer will have to design his product to fit as many different makes of cars as possible or will have to be prepared to manufacture various types to suit the different makes of cars A parts plant in an integrated chain will design its product to fit best one or two makes of cars only (the car may also be designed to use the parts), and concentration on fewer types will allow further adoption of mass production methods

Reduction in total inventories When the plants in successive stages of production are independently owned, each may be compelled to maintain fairly large inventories both of raw materials and of products which are finished as far as that stage is concerned, in order to be able to supply customers when the orders come in An integrated firm, on the other hand, can gauge the flow of the entire productive process by the sales of the end product and may be able to keep the total inventory much lower through avoidance of duplicate stocks in successive plants The independent firm will naturally try to keep its stocks low when buyers are heavily stocked, but such information on buyer's supplies may not be as available to it as it is to the firms which are integrated Moreover, the independent firm must be ready to meet the demands of any buyer who may come along or he may decide to buy from someone else The unit of an integrated firm need not hold stocks unless the succeeding stage will require the product soon

Disadvantages of Vertical Combination

Dependence of entire organization on the marketing of product by the "end firm" or plant which produces goods in their most finished form Unless the selling organization at the end of the integrated chain of plants is able to sell all of its products, all of the preceding stages will either have to curtail output or shut down as the case may be If the primary plants have dispensed with their selling force, they will not be in a position to solicit business from independent manufacturers when their own organization is unable to absorb their produce Even if they maintain a small selling force, they will not ordinarily be able to obtain much business from independents in slack times Those independents who do have orders to give for parts or materials will prefer to place them with other firms on whom they can continue to rely for supplies in a period of prosperity, rather than to buy from a link plant in an integrated chain which will decline or cancel orders as soon as its own organization can absorb its product. Moreover, the greater the degree of specialization achieved by the integrated plants, the less suited will they be to supply the needs of a general market.

Inability to take full advantage of low costs in depressions. In times of depression, raw and semi-finished materials often sell at prices much less than their replacement cost. Independent firms in the stages of production closer to the consumer may buy these materials and place their product upon the market cheaply. Even if the integrated firm should buy these materials rather than manufacture its own, it would still be burdened with the fixed costs of its own mines and primary factories.

Dilemma of excess or idle capacity. The various plants of an integrated firm will be designed to meet the requirements of the plant in the next stage, but what is meant by "requirements"? Are they maximum, minimum, or average requirements? If the plant is designed to supply the maximum requirements at least cost, it will be operating at higher than minimum cost at all times when the next plant does not require so great an output. If the plant is designed to meet the minimum requirements of the next plant, then the next plant must be prepared to buy its additional supplies on the open market in times of rising prices and may run the risk of failing to secure them at all. Designing a plant to meet average requirements is at best a somewhat unsatisfactory compromise between these two evils, being alternately subject to both. This problem of selection of the optimum size of plant in the face of fluctuating business conditions is faced, of course, by the independent firm as well as by the units of a vertical combination. However, the independent firm may be in a better position to secure more business by small price cuts than the integrated unit which sells in the open market only occasionally The greater the degree of specialization of the integrated unit plant, the less will be its opportunity to utilize its excess capacity by selling to outside firms

Economies of Perfect Monopoly

By a perfect monopoly we mean an organization which controls either the entire output of an industry or one which controls the entire market for a commodity in a given locality[3] Most of what are commonly cited as economies of monopoly are really the economies either of large-scale production or of horizontal combination It is true, however, that in many industries monopoly may be able to practice these economies to a greater extent than can either large-scale firms or combinations which do not control the entire output or market In fields where the potential market for the entire product is small, even two or three firms only may mean that the division of the market among them leaves each with an output which is too small to achieve the economies of large-scale production In such circumstances, if the demand for the product was fairly elastic, monopoly price would probably be lower than oligopoly[4] price and much lower than the price set by a few firms which operated under a price agreement

The monopoly is in a position to carry on what we have listed as the economies of horizontal combination to their extreme possible limit Cross-hauling is entirely eliminated Duplication of services may be completely avoided Such advertising as is done will be designed simply to increase total consumption of the product and not to push one brand at the expense of another, and there can be little doubt that advertising expense would be greatly reduced

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[3] Or we may say that it is a firm whose product has no close substitutes

[4] Oligopoly is a situation in which there are few sellers, each of whom takes account of his rivals' price policy

Monopoly as a stimulus to integration When a firm has an assured control of the market for a product, this may be an inducement to gain control of the earlier stages of production, perhaps even as far back as the raw materials On the other hand, if the monopoly is the chief or only customer for the raw materials or semi-finished products (monopsony), it might be more profitable simply to beat down the prices of the supplying firms rather than to acquire ownership of the firms themselves The threat of potential competition might be a more effective motive to induce attempted control of the source of supply

It may be questioned whether a firm which has a monopoly of a source of raw materials can gain anything further (assuming it is already charging the full monopoly price) by attempting to enter the field of manufacturing finished products There is one set of circumstances under which a further gain can be made If the purchasers of the raw material are themselves making large profits by fabricating it into finished goods, the monopoly owner of the raw material supply, by competing with them, may force them to accept lower prices for the finished goods If there is then any considerable elasticity in the demand for the finished goods, this may be the means of selling a greater quantity of the raw material at the same high price In general, it will be found that when the owners of the supply of raw materials begin making finished or semi-finished products, they tend to confine their efforts to those lines in which the raw material comprises as large as possible a part of the value of the finished product (For example, the Aluminum Company of America manufactures pots and pans and aluminum paint, but does not attempt to make automobiles, airplanes, or typewriters, although all these use a considerable amount of aluminum)

The field in which the greatest case can be made for the economies of monopoly is in that of public utilities, such as the that buy its products than would occur if these firms were able to obtain the raw materials cheaper during periods of business decline The more rigidities are introduced into our economic system, the more the pressure that will have to be borne by those elements which still remain flexible, such as the volume of employment

Combinations in Restraint of Trade

At the beginning of this chapter combinations were discussed mainly from the point of view of their abilities and disadvantages in securing economies in production and selling costs Those combinations which are organized mainly for the fixing of prices and the restraint of competition must now be considered Since every operating combination will tend to reduce the number of competitors and so may tend to reduce price competition, it is not always easy to distinguish between the two types Greater control over prices, rather than the achievement of economies, may be the dominant motive to combination As an arbitrary line of demarcation we shall assume that, in the combinations now being discussed, the identity of the individual firms is maintained The combination attempts to fix prices rather than to allow competitive prices to prevail

The Simple Price Agreement

The simplest form of combination in restraint of trade is a mere agreement among previously competing sellers that they will all sell at the same price Such agreements have no standing in law and will not be enforced by the courts If the price agreed on is profitable, each member of the agreement will attempt to sell all that he can at that price and then will be tempted to cut the price slightly in order to secure more business At first the price may be adhered to in a nominal way, but concessions, which are really price concessions, will be given in the form of more liberal credit terms, extra delivery service, extra quantity discounts and the like Finally comes the stage of open breaking of the agreement When price agreements of this sort have lasted any length of time, it has usually been because there were one or two very large firms which dominated the industry When this is the case, the large firm may threaten to undersell and force out of business any smaller firm that breaks the agreement If the smaller firm's business is concentrated in a particular locality, the large firm may undersell it in that particular region without cutting its prices elsewhere, and the threat may be effective in enforcing the agreement for a considerable period of time

The Price and Quota Agreement

If the voluntary price agreement is to be maintained for any length of time, it is imperative that each member receive a "fair" share of the business so that he will not be so strongly tempted to violate the agreement One method which is sometimes used in an attempt to bolster the agreement is the allocation of sales quotas or production quotas to the various members Any member who then sells in excess of his quota is fined a certain amount per unit on the excess sales and this sum is divided among the other members of the agreement There is, of course, no more means of enforcing the collection of fines than there is of enforcing the price agreement itself. However, if the quota system gives each member a satisfactory amount of the business, each may then feel that it is better to adhere to the agreed price and remain within his quota rather than trust to his own chances of survival in an open "price war" which might be precipitated by his violation of the agreement.

The Territory Pool

Another device which is sometimes used to strengthen the price agreement is the territory pool Under this arrangement the sales area is divided up and each member is given a territory in which he has the exclusive right to sell This device has the advantage over the quota system in that it may be easier to detect violations of the agreement when a member sells outside his allotted territory than to determine whether he is selling a volume in excess of his quota Unless the territory is very carefully divided, however, and unless sales in each territory conform to the expectations when the division was made, members may easily become dissatisfied with the share of the business that they are receiving and the agreement will collapse

Selling Pools and Cartels

A much stronger form of price agreement is provided for in the selling pool Under this form each member delivers his output to a central selling organization which sells for all the members only at the agreed price It also provides an accurate means of seeing that the sales of each member conform to his quota In Germany this type of organization is not against the law and these "cartels" have even been reorganized by a special "Cartel Law" Under the amendments to the Cartel Law passed in 1933, the Minister of Economics may form compulsory cartels in any industry whenever he thinks that this is necessary to the welfare of the Reich He may also (1) prohibit for a certain length of time the establishment of new enterprises in a particular industry, (2) prohibit the enlargement of existing plants, or (3) limit their output[5]

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[5] See Kessler, W C, "The New German Cartel Legislation,’ *American Economic Review*, Vol XXIV, September, 1934, pp 477 ff, for a full discussion of these amendments

The early experience of the German cartels again demonstrated the old principle that prices cannot be controlled without controlling production Some of the earlier cartels established quotas for their members on the basis of a fixed percentage of the plant capacity of each member This device broke down in a rather curious manner Member firms, which already had excess plant capacity due to the quota restrictions, enlarged the size of their plants in order to obtain a larger quota expressed as a percentage of the larger plant capacity It was also found that when profitable prices were established new firms sprang up outside the cartel This meant that the structure of the cartel itself was threatened unless it could either freeze the new firms out of business or force them to enter the cartel and assign them a quota, which would necessarily decrease the size of the quotas of the older members It was experiences such as these that led to the passage of the new cartel legislation mentioned above

It is interesting to note that one of the avowed objectives of the German cartel legislation has been to preserve the existence of the smaller firms and to prevent their being absorbed by the larger firms The prevention of cutthroat competition by the establishment of the cartels was expected to accomplish this end

Collusive Bidding on Contracts

Most governmental agencies advertise for bids on government contracts with the understanding that the contract is to be awarded to the lowest bidder This procedure is required by law on contracts awarded by many Federal, state, and local government agencies In addition to obtaining lowest costs, it is also one of the greatest safeguards against bribery and favoritism in the awarding of contracts Although it is no absolute guarantee against such practices, it does make them more difficult Some large industrial concerns, and buyers of building construction in particular, also use the procedure of asking for bids on contracts

Two systems of collusive bidding are used by conspiring contractors to defeat the purpose of requesting bids The simpler method is for all the supposed competitors to submit identical bids Although it is sometimes still used, this method is naive, since the submission of identical bids is almost *prima facie* evidence of collusion[6] A more subtle method and a more difficult one to detect is for the various contractors to get together and agree on which one is to have the contract and at what price He then submits his bid and all the other contractors submit different higher bids If the various contractors all keep silent and adhere to their agreement, it is extremely difficult to obtain evidence that this practice is being used

This second method is not apt to be successful for any length of time, however, unless the number of bidders is fairly small and the volume of total business is great enough so that each firm will secure a sufficient amount of business to induce it to keep to the agreement In cases where a particularly large contract may give a disproportionate share of the business to one firm, this problem is sometimes met by a supplementary agreement that the previously designated "successful" bidder shall award a part of the work to one or more of the other firms on subcontracts

The most conspicuous example of this type of collusive bidding agreement that has been brought to light was discovered in the investigation of the building trades scandal in New York City which finally sent two of the principals to prison In this case, the contractors' "ring" was supported by building trades union labor In return for closed shop contracts and high wages, the unions agreed not to work for any contractors outside of the agreement This kept the number of possible bidders small Unable to stand success, they kept on raising the prices until the cost of building in New York reached such fantastic heights that it was obvious that something was wrong and the investigation was started

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[6] As this is being written, the United States Attorney General s office is bringing an action under the Sherman Act against tire companies that submitted identical bids on government contracts

Disadvantages of Price Agreements

It may be said with a fair degree of truth that, from the point of view of the general public, the price agreement has all of the disadvantages and practically none of the advantages of an outright ownership and operating monopoly There will be none of the economies of large-scale production except as the individual firms happen to be of large size Furthermore, the restriction of output to conform to quotas by such large firms as do exist will tend to prevent them from operating at minimum cost Of the economies of combination, the elimination of cross-hauling will exist only in the form of price agreement which we have described as the territory pool Elimination of duplicate selling organizations may occur in the case of sales pools or cartels, only if they are expected to last for many years, so that the member firms feel like taking the risk of giving up their own sales organization Otherwise, none of the economies of combination is available to the price agreement which retains the identity of the separate firms

Since so few of the economies of large-scale production, of combination, or of monopoly are available to the firms under a price agreement, it follows that their costs will be higher than that of an operating monopoly in the same field Under the simple price agreement, it is also impossible to close down a few of the plants in order to run the others at optimum capacity It is thus safe to say that it is practically certain that prices will be higher under a price agreement than they would be either under some form of competition or under outright monopoly

The greater loss to the public, in the form of higher prices, under a price agreement than under an outright monopoly is obvious It must also be remembered that higher unit costs represent a wastage of our economic resources

Advantages of Price Agreements

There are some alleged advantages to the public in price agreements over monopoly Though prices are uniform, competition may exist in the form of services or quality of product In any event, such competition will not exist either under the territory pool or under the selling pool Even where sales quotas are allotted, competition on the basis of service or quality is not apt to exceed that necessary to obtain the full amount of the quota for the firm Since such quotas, in order to obtain higher prices, are usually lower than full competitive output, it is not likely that much service or quality competition will be deemed necessary Service and quality competition are thus seen to be confined largely to the simple price agreement without sales quotas Even under the simple price agreement, whenever service and quality competition become really keen it will usually be found that this is a prelude either to the breakdown of the agreement or to the adoption of more stringent forms of price control

The claim is also made that price agreements tend to keep the smaller firms in business Even if this is true, of what advantage to society is the retention of the identity of small firms if they no longer compete on the basis of price, and probably do not compete even on the basis of service or quality? Most of the vaunted virtues of small firms cease when the firms cease being competitors If a few large firms "gobble up" the small ones, the prices that they charge may or may not be higher than the prices which were charged when the small firms were in genuine competition with them, but the prices charged by a few large firms are apt to be less than would be the case where there are many small firms operating under a price agreement Moreover, it is by no means always certain that it is the smaller firms which are receiving the protection under a price agreement In some few industries where the larger firms may be found to be too large to operate economically, it may be found that the severest competition is coming from the small and medium-sized firms

It is also alleged that controlled prices under a price agreement tend to "stabilize business conditions" Investigation will show, however, that such "administered" prices go up by a succession of large jumps in the upward phase of the business cycle and then are lowered only reluctantly and gradually in the recession and depression Each rumor of a jump in price brings about accumulation of stocks by purchasers, and the peak of prosperity is apt to find them with just as excessive inventories as they would have with competitively priced products

The Sherman Anti-Trust Act

The first important attempt of the Federal Government to attack the problems of combination and monopoly in fields other than the railroads was made in the Sherman Anti-Trust Act of 1890 This act declared "every contract, combination in the form of a trust or otherwise, or conspiracy, in restraint of trade or commerce" either in interstate or foreign commerce to be illegal, and further made it a misdemeanor to "monopolize or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce among the several states, or with foreign nations" Individual firms which are injured by combinations in restraint of trade or other practices prohibited by the act are also permitted to sue for damages and, if successful, it is stipulated that they receive three times the amount of the damages proved, plus attorneys' fees.

The cases under the Sherman Act were few and unspectacular until the advent of the "trust-busting" era under the late President Theodore Roosevelt. The Northern Securities case (an attempt to combine the Great Northern and Northern Pacific railroads under a holding company) and the cases involving the dissolution orders against the Standard Oil Company and the Tobacco Trust attracted widespread public attention. For a time people actually believed that the act would be effective in curbing monopolies. The subsequent rapid spread of the "Interlocking Directorate" (various directors being on the boards of two or more companies to secure price or other agreements) and of the various forms of price agreement soon proved this belief to be unfounded. A typical cartoon of the time pictured the "Standard Oil Trust" and the "Tobacco Trust" as fat men riding along luxuriously in a limousine while a number of poor "trusts" on the curbstone are saying, "Please dissolve us too."

The rule of reason is a famous legal doctrine which was announced by the Supreme Court in the Standard Oil case. Under a literal interpretation of the language of the Sherman Act, even so small a combination as that of two corner grocery stores might be deemed to be "in restraint of trade" and therefore unlawful. To avoid the cluttering of the court dockets with cases such as this, the Supreme Court, in effect, "read the minds" of the Congressmen and announced that the act was intended to be directed only against "unreasonable" restraint of trade and not against combinations incidental to an otherwise lawful purpose. The court has never put itself on record with a comprehensive definition of what does or does not constitute "unreasonable" restraint of trade, so that no planned combination can be absolutely sure in advance whether it will be deemed legal or not. From subsequent decisions of the court, we may draw the inference that the court directs its particular attention to the questions (1) whether the combination controls a substantial majority of the output of an industry, (2) whether an attempt is made to control or raise prices, (3) whether competitors are compelled to join the combination or are forced out of business by unlawful means, and (4) whether prospective new competitors are prevented from entering the industry

The Clayton Act

It finally became evident that there was not much effect in "busting the trusts" after an industry was in the hands of a combination of a few large firms and after effective competition had been stifled The Clayton Act, passed in 1914, represents an attempt to prevent the formation of monopolistic combinations by making illegal some of the means by which monopoly power was often attained Specifically it was directed against holding companies, local price discrimination, interlocking directorates, and tying contracts (contracts which bind the purchaser of a product to use certain of the seller's other products in connection with it for example, requiring the buyer of a cotton compress to use bale ties provided by the seller) These practices were not necessarily made illegal in themselves but were to be considerd illegal when the effect was to lessen competition substantially or to tend towards the creation of monopoly The Clayton Act also made civil damage suits easier than under the Sherman Act by providing that conviction by the government under the criminal provisions of the anti-trust acts was to be considered as *prima facie* evidence against the defendant in a civil suit

The Federal Trade Commission

The Federal Trade Commission was also established shortly afterwards Its principal duties are the conducting of investigations to determine whether the anti-trust acts are being violated and aiding the Department of Justice in prosecution, the investigation of trade practices with a view to proposing remedial legislation to Congress, and the prevention of "unfair methods of competition."

Probably the most interesting phase of the work of the Federal Trade Commission has been in the field of exposing and prosecuting "methods of unfair competition." The mere listing of the different types of unfair trade methods which the Commission has had occasion to bring before the courts would fill several pages. Among them will be found: false advertising, boycotting, inducing breach of contract, bribing employees of customers and competitors, conspiracy to cut off supplies of competitors, discrimination, disparagement of competitors, threatening competitors and their customers with patent infringement suits, rebates, closely imitating competitor's name or trade-mark, tampering with competitor's goods in order to make them demonstrate poorly, and the maintenance of resale price by discrimination against price cutters.

It is rather ironical to note that the vast majority of the Commission's actions have been to the effect of protecting the "good will" of the various firms supposed to be injured. We know that "good will" is one important element of monopoly power. Thus, although attempting to prevent the formation of monopolies, the actions of the Commission have contributed much to the rise of monopolistic competition.

Prior to 1938, whatever protection the consumer received from the Federal Trade Commission was most apt to be entirely incidental. "False advertising" was generally proceeded against not because it injured the consumer but mainly because it tended to injure the business of a competitor. Repeated cases have arisen in which a firm manufactured a product identical with (or perhaps even superior to) that of a competitor. If it then packaged its product in a manner to imitate the competitor's package and sold it at a lower price, it would be enjoined from such a practice on the ground that it was "deceiving to the public" Granted that the people are deceived in such a case, it is difficult to see how they are harmed, if the product is identical and the price is lower and will remain lower, it would seem that the deception is beneficial The damage to the competitor is obvious It is only fair to state that in a great many cases the imitation is an inferior product In such cases the public is also protected by the prohibition of package imitation

This discussion does not suggest any criticism of the Federal Trade Commission itself That body has simply been administering the law as it has been written and as it was interpreted by the courts Under the 1938 amendment to the Trade Commission Act, the Commission is now empowered to act in cases of deception which tend to damage the consumer, even though no damage to a competitor can be shown Congress is now engaged in an investigation (Temporary National Economic Committee) which it is hoped will shape the course of new legislation

Public Policy on Competition and Monopoly

In spite of the "bust the trust" and "anti-monopoly" slogans which have appeared in various political platforms from time to time, we have by no means arrived at any definite public policy in this respect Indeed, we have not even considered fully either the means necessary to carry out a policy nor its full implications if carried to its logical conclusion At present, our system is a curious hodge-podge of enforced and regulated monopolies (public utilities), government-fostered and largely unregulated monopoly, oligopoly, and monopolistic competition (fostered by patents, trade-marks, protective tariffs, and the suppression of "unfair competition"), and finally, a few surviving elements of pure competition in the markets for some agricultural products.

If experience has taught us anything, it is that no particular degree of competition or monopoly is "good" or "bad" *per se,* but rather that the nature of each particular industry will be the most important element in determining what state of competition or monopoly will be the most economical for the community. By "most economical" we mean that which results in (1) greatest output at lowest prices, (2) most efficient use of resources, (3) most convenient service for the consumer consistent with (1) and (2). These three aims will sometimes be found to conflict with each other and it then becomes a question of which end we desire most or of possible compromises. (For example, do we want the widest possible choice in articles of clothing or do we want the lowest possible prices?) With these aims in mind, let us consider the field and function of the various forms of monopoly and competition in a supposed "ideal" economic system, which still attempts to take advantage of the motivating forces of profits and differential wages.

The Field of Monopoly

Monopoly is indicated as the appropriate form for any industry (1) in which a single firm can achieve much lower unit costs than would result from any division of the market among two or more firms, and (2) in which duplication of facilities will not result in a sufficiently greater value of service to the consumer to justify the higher cost. The "public utilities" have already been cited as examples of this situation. In the future we shall probably witness some expansion in the number of industries which are called public utilities. (Perhaps retail milk distribution might be the first addition.) When the word monopoly is used in this connection, it of course refers to ownership and operation of an industry by a single firm and not to some form of price agreement or combination in which the identity of individual firms is retained

In some industries it may be found that demand is sufficiently elastic and that marginal costs are falling over a sufficient range of output so that unregulated monopoly price would be lower than competitive price In most cases some positive action must be taken if the benefits of low monopoly costs of production are to be passed on to the public in the form of lower prices The alternatives are then government regulation or public ownership

The Field of Duopoly and Oligopoly

In industries where large-scale organization is necessary to achieve lowest costs and at the same time the market is too large to be served by one firm of optimum size (and possibly where product differentiation can measurably increase consumer satisfaction), duopoly or oligopoly would seem to be indicated The manufacture of low and medium-priced automobiles in the United States appears to be the best example of such an industry

Whether we may rely upon competition to keep prices low depends upon, (1) the willingness of the various firms to engage in price competition and (2) the readiness with which buyers will shift from one seller to another in response to small differences in price When this is not the case, there may be either recourse to the Sherman and Clayton Acts in an attempt to prevent price agreements (not too successful to date), or the government may take a hand in setting maximum prices The Department of Justice has recently announced an interesting technique which may be applicable in this situation anti-trust proceedings are first started as a threat, and then the case is dropped under a "consent decree," which contains provisions covering trade practices and presumably an agreement to reduce prices The results of this procedure should be interesting. Even its announcement is an indication that we are beginning to be more realistic than we were in the "trust-busting" decades.

The Field of Monopolistic Competition

Where there is a wide variety of tastes to be served, where the manner of service may be an important element in the satisfaction that the customer derives from the product, and where the nature of the industry is such that small firms are numerous and are the most efficient, monopolistic competition would seem to be indicated for the industry. The legal bulwarks of the monopoly element in monopolistic competition are patents, trade-marks and the general protection of "good will" for the owner of a business by the laws and the courts. We have already had occasion to state some of the arguments for and against these special privileges accorded to business firms by the government. (See p. 17.)

Since "good will" could hardly exist without these important elements of government protection, it would seem reasonable that the government should insist that they be used as far as possible in conformity with public interest and not as a means of preventing price comparisons and of confusing or deceiving the buyer. A few simple measures suggest themselves which, if generally required (some are already in partial use), might greatly facilitate price comparisons and so increase the element of price competition. (1) Wherever services are separable, require that they be separately priced and purchased only at the buyer's option. Require, for example, that delivery charges be stated separately from the price of the product and be charged to those who insist on delivery and not to those who carry the goods home themselves. Also make credit a separate and clearly stated charge only against those who use it. (2) Limit packages and containers to a few standard sizes, the gradations in size being such as to be readily apparent to the eye (3) Establish Federal grades for all products, wherever possible, and require that these grades be printed in large type upon consumer packages (4) Revise Federal grades so that grades 1, 2 and 3 indicate, at least roughly, the same relative grades for all commodities (This need not preclude the retention of a "fancy" grade for qualities which are pleasing to the eye only) (5) Provide that false claims, either in the advertising or on the label of a product, be made sufficient grounds for revocation of patent or trade-mark together with widespread public notice of such revocation and the reason therefor (For a first offense it might be sufficient to require the publication of a retraction, publication being at the offender's expense and to be given the same publicity as had been given to original false claim) If this measure were ever proposed in Congress, there would certainly be a howl about "government interference with business," but if a firm's "good name" is to be protected in the courts, it would seem that there should be a requirement that it be a *good* name and not a vehicle for dishonest advertising

The Field of Pure Competition

After defining the other fields, the field of pure competition is thus narrowed down to those industries in which the most efficient firms are of small size and in which product differentiation can confer no benefit upon the buyer It may be said, however, that if the regulations suggested in the above paragraph were adopted, many industries now characterized by monopolistic competition would closely approximate the conditions of pure competition At least competition would be much more on a price basis

Conclusions

Monopoly is not necessarily an evil, it may be the only form of organization under which low costs can be achieved, but usually it requires some form of government effort to see that the benefits of monopoly accrue to the public Neither large nor small business has any claim to virtue or deserves to be designated as vice Each has fields to which it is most economically suited Where small business is actually most efficient it will probably continue to survive without help In many industries where there are small "special orders" as well as large markets for standard goods, small firms may survive in the same industry with large firms If there exist any sentimental worries about what will happen to the small businessman in those fields destined for large-scale organization, he may be pictured in the place where he probably will arrive, as the minor executive in a large corporation On the average his salary might be expected to be greater than his earnings as an independent businessman A comparison of the executive employment records of large corporations with Dun and Bradstreet's records of the percentage of small business failures would likely show that he would be more secure with the corporation than working for himself

For the present our best course would be to allow each industry to adopt the form that is best suited to it (possibly preventing cutthroat competition and piracy during the process), and then to attempt to secure the maximum benefits for the public from that best form For large noncompetitive business, some degree of price regulation may prove necessary For small businesses (and to some extent for larger ones), active efforts to force competition on to a price basis may prove to be the solution

CHAPTER XII

Temporary or Short-Run Equilibrium of the Firm or Industry

IT WILL be remembered that in Chapter IX we identified the short-run period with plant and equipment already produced and in existence. We found that in the instantaneous or market supply period, cost of production was either ignored or, if considered, was considered in terms of anticipated future cost.

In the present chapter we are taking into consideration the possibility of increases or decreases in output to be achieved within the limits of plant and equipment already in existence. It is obvious that, where the individual seller is free to change his output (and such action will have an effect on his costs), he will consider costs in connection with the supply that he offers for sale.

Our first principle is *each seller, if not deterred by other considerations, will endeavor to adjust his output to that point at which total revenue will exceed total costs by the greatest possible amount, or at which losses are smallest.* In other words, we are saying that each seller will try to obtain the greatest possible net returns. The "other considerations" in the qualifying phrase might be fear of government interference if too high a price is charged, or fear of attracting new competitors into the field. However, when the seller does take these other considerations into account, he is merely deciding that a lower price may yield a greater return in the long run than a higher price which yields a greater net return for a short time but brings about the consequences of government regulation or increased competition. If we bear this in mind we may safely drop the qualifying phrase.

Notice that there is no difference in *motive* here between the purely competitive seller and the monopolist, both attempt to gain maximum profits. (We shall find that, under certain circumstances of pure competition, the *attempt* of each seller to obtain maximum profits actually *results* in zero profits or a loss for all, but this is due to a difference in *circumstances* and not to a difference in *motive* between monopolists and competitors.)

Our second principle follows naturally from the first: *the individual firm will be in equilibrium with respect to output at the point of maximum net returns.* If a given firm should discover that by either expanding or contracting its output it could make a larger return, the firm would be motivated to expand or contract as the case might require. Equilibrium will exist only at that point where there is no motive to expand or contract, that is, at the point of maximum net profits (which might be zero or a minimum loss, as indicated above).

For our next two principles we must turn our attention to the industry as a whole. We may define an industry as a group of firms producing a homogeneous commodity or a group of commodities that are close substitutes for each other. *If entry to and egress from an industry are unimpeded, a rate of profit above that which is being made in other industries having similar risks will tend to attract new firms to enter the industry, conversely a rate of profit below that which is being made in other industries will encourage firms to leave it.*

Combining the above principles, we arrive at the test for equilibrium in an industry: *An industry will be in equilibrium when there is no motive for the number of firms to be* *increased or decreased and no motive for the existing firms to expand or to contract their total output*[1]

Opportunity Cost

Now, let us assume that we know the demand curve for the product of a particular firm If we are able to discover the laws which govern production costs for various amounts of output, we shall be able to determine the point of maximum net returns Before we go further, we must define what we mean by cost of production *The cost of production of any unit of a commodity is the value of the factors of production used in producing that unit. The value of these factors of production is measured by the best alternative use to which they might have been put had this particular unit of the commodity not been produced*[2]

The working of this principle can be easily seen in the case of a self-sufficing farmer who is producing in order to consume the products himself If he uses a certain piece of land and a certain amount of labor in growing corn which might otherwise have been used to grow tomatoes, the cost to him of the number of bushels of corn that he harvests is the number of bushels of tomatoes that he might have obtained, assuming that raising tomatoes would have been the best alternative use for the amount of land and labor needed to grow the corn This is also the only sense in which we can speak of a *social cost* of production, and would be the principle on which a communist society would have to allocate its resources Thus, if the rulers of Russia decide to use a certain amount of labor and materials in making airplane motors which might otherwise have been used in making tractor motors, the cost of the airplane motors to the Russian people will be the number of tractor motors that they might have had Whether the welfare of the Russian people will be greater with more airplanes and less tractors is a question to which it is not easy to find the answer, and we will not try to do so here

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[1] There is always a motive for each firm to desire to see the *other* firms reduce output or leave the business, but whether this motive results in attempted action depends upon other conditions which are discussed elsewhere

[2] See Henderson, H D, *Supply and Demand,* p 94, Harcourt, Brace & Co, New York, 1922

What we are interested in immediately is the influence of costs in regulating output in an economy based on money and exchange In such a society it is the money costs of production to which we must pay attention *The money costs of production of a unit of any commodity is the amount of money necessary to induce the factors of production to be devoted to this particular task rather than to seek employment elsewhere* These costs have been called, very properly, *opportunity costs* They are the money which the factors of production must be capable of earning in one firm or one industry in order to induce their continued use in that firm or industry rather than to transfer to another firm or industry Thus, if I am an automobile manufacturer and wish to make 100 more cars a day, I must pay the necessary number of mechanics a sufficient wage to induce them to work for me rather than for the airplane factory across the street The fact that both the airplane factory and I may be paying the same wages should not confuse the reader, because, if I were not hiring these men, they would be competing for jobs with the men now employed by the airplane factory, and the airplane factory would then be able to hire these men and the men they now employ at a lower rate of wages than they are now paying If the demand for automobiles should increase again while the demand for airplanes remained unchanged, I would be able to offer a still higher wage to attract more men away from the airplane factory The airplane factory would then have to raise wages to meet my increase in order to keep any men at all The airplane manufacturer will not be able to hire so many men as before, however, since, with a higher cost, if he charges higher prices for airplanes, he will not be able to sell so many.

This principle of opportunity costs applies to all factors of production and to all kinds of businesses Thus, if I wish to set up a shoe store in a certain corner building, I must pay the owner a sufficient rent to induce him to lease it to me rather than to someone else who might be eager to start a grocery store or a haberdashery in the same location Similarly, if I wish to borrow money to buy a stock of shoes for the store, I will have to pay a rate of interest which will be sufficient to induce the bank to loan the money to me rather than to someone else

Opportunity costs are not always cash expenditures For example, if I am managing my own business and wish to figure my costs properly, I must charge as one of the costs of doing business the wages I might have obtained working as a hired manager for someone else It is true that I do not have to pay out any money to anyone else because of this cost, but if, on that account, I do not consider it a cost, I am only deceiving myself. Let us suppose I am running a corner grocery for myself, but I could, if I wished, have a job as manager of a chain store at $2,000 00 a year At the end of a year's business, after deducting from my receipts all costs except my wages of management, I find $1,500 00 left over which I might be tempted to call a profit Actually, I have had a net loss of $500 00 in doing business for myself rather than working for the chain store In terms of the illustration, in running my own business I have sacrificed the opportunity of making $2,000 00 working for someone else This same way of figuring must be applied to all costs [3] If I am using my own money in my own business, I must figure as a cost the interest I might have received if I had loaned it to someone else or invested it in stocks or bonds Similarly, if I own my own store building, I must figure as a cost the rent which I might have received if I had leased it out to someone else

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[3] Except in filing income tax returns, where you must be prepared to abide by arbitrary rules or to fight a court action against the Treasury Department

For the present part of our discussion of costs we must make a very important assumption We shall assume that no new inventions or innovations[4] take place Thus, for the moment, we are not concerned with what might happen to costs should a new, more efficient machine or process be discovered Nor are we now interested in tracing the historical movement of costs in the past as improvements have been made in the productive process What we are trying to do is to isolate the effects of changes in output of a firm or an industry, as the case may be The question we are asking is What costs will be associated with different amounts of output, using methods of production which are already known? Any change in method that occurs will be only such change as is occasioned by a different amount of output For example, picks and shovels are known and in existence, and so are steamshovels Whether it will cost less to use one or the other will depend largely upon the size and the number of holes we wish to dig

Fixed and Variable Costs

In the short run there are two main types of costs, *fixed costs* and *variable costs* Fixed costs are those which remain constant as a *total* over a considerable range of output Some fixed costs are fixed for years (for example, interest charges on bond and mortgage indebtedness, depreciation through obsolescence), others are fixed over months (salaries of superintendents and foremen), still others are fixed for at least parts of the plant (heating and lighting and so on) These costs are often called *overhead costs* by businessmen It will be obvious that these costs will remain fixed only over certain ranges of output For instance, if we wished to expand output by a large amount, it would be necessary to hire more foremen, and hence the total item for wages for foremen would not remain absolutely constant However, as long as the same number of foremen are hired, their total wages will remain fixed regardless of increases or decreases in the number of units produced by the firm

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[4] See Schumpeter, J A, *The Theory of Economic Development,* pp 66 ff, Harvard University Press, 1934

Variable costs are those which vary directly as a *total* with the number of units produced Common examples of variable costs are the cost of raw materials and of the labor used directly in the manufacture of a product

While we have said that fixed costs will remain constant *as a total* over a large range of output, *average fixed costs* per unit of product will decrease steadily with each increase in the number of units produced with the same fixed costs[5] Thus, if with a certain fixed cost we produce 10 units of a commodity, 1/10 of the total fixed cost will have to be assigned to each unit produced, whereas, if with the same fixed cost we produce 100 units, each unit would then have to bear only 1/100 of the overhead cost If fixed costs were the only costs to consider, and if it were possible to produce an infinite amount of the product with the same sized plant and investment, average costs per unit of product would always be lower whenever the volume of output increased

The Law of Nonproportional Outputs

But there is the matter of variable costs to consider Here we encounter the *law of nonproportional outputs*[6] which is stated *if one or more factors of production are held constant and one or more other factors are allowed to vary in amount, the total output will not vary in continuous proportion to the amount of variable factors employed* This law might also be stated as follows If one or more factors of production are held constant, and one or more other factors are allowed to vary in amount, the output per unit of variable factor will not continue to remain constant, but will increase, reach a maximum, and then decrease

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[5] See *Production Organization* by Black, John D , and Black, A G , Henry Holt & Co , New York, 1929, for a more thorough discussion of least cost combinations The article, "On the Law of Variable Proportions,' by Cassels, John M , in *Explorations In Economics* McGraw-Hill Book Co , New York, 1936, is also recommended

[6] This law is more usually called the *Law of diminishing returns* The change of terminology is used to avoid the confusion which the beginning student usually has with the terms *diminishing returns, diminishing utility,* and *maximum net returns*

An example may help to illustrate how this law works Let us suppose that we have a small factory for making brass ashtrays, that the factory is equipped with five stamping machines, and that we wish to find the best number of men to use with these machines If we started out experimentally, adding one man at a time, the results might be as follows

INPUTS		*Daily Output of Ashtrays*	*Marginal Physical Product per Man Day*	*Daily Output per Machine*	*Output per Man Day*	
Machines	*Man Days*					
5	1	91	91	18 2	91	Range of increasing proportional output per man
5	2	200	109	40 0	100	
5	3	324	124	64 8	108	
5	4	460	136	92 0	115	
5	5	605	145	121 0	121	
5	6	756	151	151 2	126	
5	7	910	154	182 0	130	
5	8	1064	154	212 8	133	
5	9	1215	151	243 0	135	
5	10	1360	145	272 0	136	
5	11	1496	136	299 2	136	Range of decreasing proportional output per man
5	12	1620	124	324 0	135	
5	13	1729	109	324 5	133	
5	14	1820	91	364 0	130	
5	15	1890	70	378 0	126	
5	16	1936	46	387 2	121	
5	17	1955	19	391 0	115	
5	18	1944	–11	388 8	108	Absolute decline of output
5	19	1900	–44	380 0	100	

The term *nonproportional* has also the advantage of referring to the entire output curve and not merely to the diminishing part of it It also has reference to the cause of varying output, namely, the use of factors of production in other than optimum proportion

In the preceding table, the point between which the 10th and 11th man is added gives the greatest output per man This point would be called *the point of maximum efficiency of labor*, assuming that the number of machines remains fixed at five Whatever the wages may be, this point will represent the lowest labor cost per unit of output if wages are the same for each man hired

While the output per man falls steadily after the addition of the 11th man, the output per machine increases up to the point at which the 17th man is added This point is the point of maximum efficiency of machines From this point on we could obtain a greater product only by adding *both* more men and more machines As long as the number of machines is held at five, this point will give us the lowest machine cost per unit of output

Least Cost Combinations

Which point will give us the least total cost of both men and machines per unit of output? Is it the point of maximum efficiency of men, or the point of maximum efficiency of machines, or is it some point between the two? We *cannot* answer this question unless we know both the wages of the men and the number of dollars per day that it costs to run each machine For example, let us assume that wages are $3 00 per man per day, and that it costs $8 00 per day to run each machine (depreciation, interest charges, and so forth) The physical output of ashtrays associated with each combination of machines and man days is taken from the previous table The costs for the part of the table in which we are interested would then be

Number of Machines	*Number of Man Days*	*Total Machine Cost*	*Total Labor Cost*	*Output of Ashtrays*	*Machine Cost per Unit of Output*	*Labor Cost per Unit of Output*	*Cost of Both per Unit of Output*
5	10	$40	$30	1360	0294	0221	$0 0515
5	11	40	33	1496	0267	0221	0 0488
5	12	40	36	1620	0247	0222	0 0469

Number of Machines	*Number of Man Days*	*Total Machine Cost*	*Total Labor Cost*	*Output of Ashtrays*	*Machine Cost per Unit of Output*	*Labor Cost per Unit of Output*	*Cost of Both per Unit of Output*
5	13	40	39	1729	0231	0226	0 0457
5	14	40	42	1820	0220	0231	0 0451
5	15	40	45	1890	0212	0238	0 0450*
5	16	40	48	1936	0207	0248	0 0455
5	17	40	51	1955	0205	0260	0 0465

* Least cost combination

We find that the least cost combination, under these circumstances, is that of five machines and fifteen men, the total man and machine cost per ashtray being $0 0450 Now let us see what happens if the machine cost per day is kept at $8 00 while the wages per man rise to $4 00 per day

Number of Machines	*Number of Man Days*	*Total Machine Cost*	*Total Labor Cost*	*Output*	*Machine Cost per Unit of Output*	*Labor Cost per Unit of Output*	*Machine and Labor Cost per Unit of Output*
5	10	$40	$40	1360	0294	0294	$0 0588
5	11	40	44	1496	0267	0294	0 0561
5	12	40	48	1620	0247	0296	0 0543
5	13	40	52	1729	0231	0301	0 0532
5	14	40	56	1820	0220	0308	0 0528*
5	15	40	60	1890	0212	0317	0 0529
5	16	40	64	1936	0207	0331	0 0538
5	17	40	68	1955	0205	0348	0 0553

* Least cost combination

We now find that with machine costs of $8 00 each per day and labor cost of $4 00 per man per day, the least cost combination is that of five machines and fourteen men We can thus say that the rise in the price of labor has decreased the ratio of men to machines, or that it has increased the ratio of machines to men, in the least cost combination

On the other hand, an increase in the cost of machines, say to $15 00 or $20 00 each per day, would result in a least cost combination of more men per machine if the wages remained unchanged The rate at which one factor of production will be substituted for another in response to a change in their relative prices is called the *elasticity of substitution of the factors.*

It should be noted that we could just as well have conducted our experiment by holding the number of men constant at a certain figure and varying the number of machines. (A further application will be found in Chapter XIII.)

Notice that so far we have been considering only two of the cost elements involved—men and machines. To make a thorough cost experiment, we should have to try varying the number of both men and machines (in their least cost proportion) while keeping the size of the building constant, we might vary the number of foremen used with a fixed number of men and machines, or we might vary the horsepower of the motors used on the machines, and so on. If we wished to expand output by any great amount, we should have to consider the effect upon costs of varying the size of the building as well as the other elements.

Whether a given cost element will be considered as a fixed cost or as a variable cost depends upon the amount of change in output which is under consideration. Thus, for a very small increase in output it might be desirable to hire one or two more men rather than to purchase another machine. For a somewhat larger output, it might give lower costs to increase the number of both men and machines without increasing the size of the factory building. For a still larger output, lowest costs might be achieved only by increasing the size of the factory as well.

Adjustment of Output to Selling Price

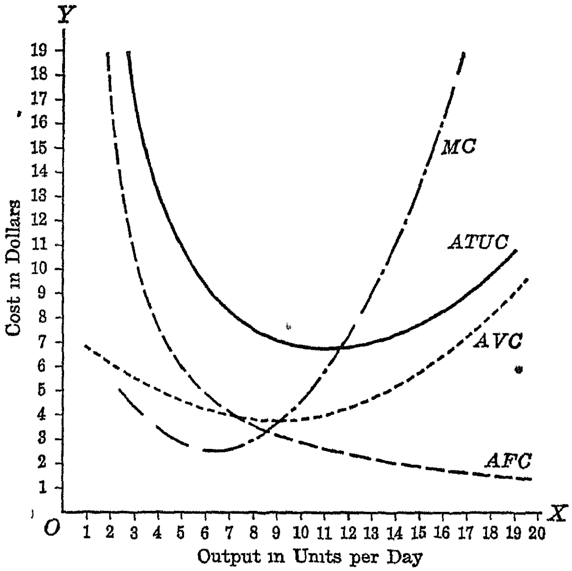
However, before going into the question of varying the size of the factory, let us see how output is adjusted to selling price with a given set of cost conditions and a fixed size of plant. We can see this best by means of an example and a diagram. Let us suppose that you have a small factory for making lamps and that your costs are given by the table that appears on the following page.

In the table, column 1 represents various possible amounts of output Column 2 represents total fixed costs per day (assuming $9,600 00 annual fixed charges and 300 working days in the year) Total fixed cost will remain unchanged as long as we keep the same investment and overhead expense (as it is assumed that we do) Column 3 is derived by dividing the items in column 2 by the items in column 1 It will be noticed that if we could continue to increase output with the same fixed cost, the items in column 3 would be constantly decreasing, approaching but never quite reaching zero Column 4 shows the amount of variable costs (labor, materials, and so on) which we estimate or have found by experience would be associated with each possible amount of output

DAILY COST SCHEDULE FOR SMALL FACTORY

(1) *Output No of Units*	(2) *Total Fixed Costs*	(3) *Average Fixed Costs*	(4) *Total Variable Costs*	(5) *Average Variable Costs*	(6) *Total of All Costs*	(7) *Average Total Unit Cost*	(8) *Marginal Cost*
1	$32 00	$32 00	$ 7 20	$ 7 20	$39 20	$39 20	
2	32 00	16 00	12 90	6 45	44 90	22 45	$ 5 70
3	32 00	10 67	17 40	5 80	49 40	16 47	4 50
4	32 00	8 00	21 00	5 25	53 00	13 25	3 60
5	32 00	6 40	24 00	4 80	56 00	11 20	3 00
6	32 00	5 33	26 70	4 45	58 70	9 78	2 70
7	32 00	4 57	29 40	4 20	61 40	8 77	2 70
8	32 00	4 00	32 40	4 05	64 40	8 05	3 00
9	32 00	3 55	36 00	4 00	68 00	7 55	3 60
10	32 00	3 20	40 50	4 05	72 50	7 25	4 50
11	32 00	2 90	46 20	4 20	78 20	7 10	5 70
12	32 00	2 67	53 40	4 45	85 40	7 12	7 20
13	32 00	2 46	62 40	4 80	94 40	7 26	9 00
14	32 00	2 28	73 50	5 25	105 50	7 53	11 10
15	32 00	2 13	87 00	5 80	119 00	7 93	13 50
16	32 00	2 00	103 20	6 45	135 20	8 45	16 20
17	32 00	1 88	122 40	7 20	154 40	9 08	19 20
18	32 00	1 78	144 90	8 05	176 90	9 83	22 50
19	32 00	1 68	171 00	9 00	203 00	10 68	26 10
20	32 00	1 60	201 00	10 05	233 00	11 65	30 00

Column 5 is the result of column 4 divided by column 1, showing the variable cost per single lamp at each output Column 6 represents column 2 plus column 4, showing the total of costs (fixed plus variable) of the entire amount produced at each output Column 7 may be found either by dividing column 6 by column 1, or by adding column 3 and column 5 It shows the total cost per lamp at each output Column 8 is obtained by moving down column 6, stopping at each item, and subtracting the preceding item from it *Marginal cost* (column 8) *is the addition to total cost* made necessary by producing the *last additional unit* at each output Marginal cost may also be found from the table by moving down column 4, stopping at each item, and subtracting the preceding item from it This shows that marginal cost is dependent on *total variable cost* alone and *not* on fixed cost, so long as total fixed costs remain unchanged.



The Four Cost Curves

The diagram is drawn from the figures in the table In the diagram, *AFC,* the broken line, is average fixed costs, *AVC,* the dotted line, is average variable costs, *ATUC,* the solid line, is average total unit costs

MC, the dash-dot line, is marginal cost At each output, *MC* shows the amount of increase in total cost which is necessary to produce the last unit of output

As long as marginal cost lies below average variable cost, average variable cost will continue to decline, and marginal cost will intersect average variable cost either at its lowest point or between the lowest cost unit and the next higher unit If the units are finite, the intersection will be one half-unit to the right of the low point of the average curve

As soon as marginal cost crosses average variable cost, average variable cost will start to rise Marginal cost will always rise more rapidly than average variable cost, since marginal cost represents the additional cost necessary to produce the last unit, whereas in average variable cost this addition is divided among all the units The same relations exist between marginal cost and average total unit cost, that is, marginal cost will intersect both curves at approximately their lowest points[7]

If the table and the diagram represent the cost conditions of your lamp factory, what will be the best output for you to produce? The unthinking reader will look at the

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[7] If the units are chosen sufficiently small, the marginal curve and the average curves must intersect at exactly the lowest points on the two average curves By calculus

Let x = output, y = average variable cost, and K = total fixed cost

Total variable cost $= F(xy)$

(1) Marginal cost $= \frac{d}{dx}(xy)$

$= y + x\frac{dy}{dx}$, and marginal cost = average cost when $x\frac{dy}{dx} = 0$, that is, when average cost is at minimum schedule or curve of average total unit costs and say immediately, "eleven units, at which output the cost will be $7 10, the point of lowest total unit cost" However, we must remember that we are not interested in the greatest profit, or least loss, per unit of product What we are interested in is making the greatest possible amount of *total* net profit, or the least amount of *total* net loss on the output we produce Therefore we cannot say what the best output would be until we also know the price at which each amount of output can be sold

To take the simplest case first, let us assume that the lamp market is a purely competitive one Under these circumstances, the demand for lamps made in this factory will be perfectly elastic, and marginal revenue and average revenue will coincide, that is, you may take it for granted that any amount between zero and the greatest possible output can be sold without causing the price to fall Hence, for each additional unit, you get the same price and total revenue increases always by the price received for the additional unit—that is, marginal revenue is equal to price Assuming, then, that changes in your output alone will not change the price, let us see what your output will be at various market prices

In the first place, unless price is *at least equal* to average *variable* costs at some output, *no production will take place under pure competition in the short run except through the desire to*

$$\text{Total of all costs} = F(xy) + K$$

$$\text{Marginal cost} = \frac{d}{dx}\,[F(xy) + K]$$

$$= \frac{d}{dx}\,(xy) \text{ which is the same as (1) above}$$

If $\frac{K}{x}$, average fixed cost, is added to y, then marginal cost will intersect the curve $y + \frac{K}{x}$, average total unit cost, at its lowest point also *maintain a force of key employees, and if there is a future prospect of higher prices or lower costs.* In our example, if the price were $3.60 and nine units were produced, the total costs would be $68.00 and the total revenue ($3.60 times 9) would be $32.40, leaving a total net loss of $35.60. At any other output, if the price is $3.60, the loss will be greater than $35.60. However, if the business is shut down completely, the loss would be only the fixed charges of $32.00 per day. Of course, as we showed in Chapter IX, there were some lamps on hand already completed, it might be advisable to take what you could get for them. But if they were only partly completed, the price would have to be above the additional cost necessary to complete them in order to induce you to finish their production. (This is the unfortunate situation in which farmers sometimes find themselves when the price of fruit will not cover even the cost of picking, and the fruit is allowed to rot on the trees.)

Now let us be a little less gloomy and assume a price of $4.50. What will be the best output at that price? Our governing principle is: *At any price above minimum average variable cost, the output at which marginal revenue is equal to marginal cost will be the point of least total net loss.* Since we have assumed perfectly elastic demand, marginal revenue is the same as price, $4.50. Looking down column 8 of our table, we find a marginal cost of $4.50 at the output of 10 units. At this output, total revenue at a price of $4.50 would be $45.00; looking down column 6, we find total cost would be $72.50, leaving a net loss of $27.50. This is the point of least loss, if the price is $4.50. At any other output the loss would be greater. Would you shut down? No, because, if we assume that you could save none of your fixed costs by shutting down completely, then you would be better off producing ten units at this price than by shutting down. Your total revenue covers all your variable costs and leaves $4.50 over to go to fixed costs.

While you might continue to produce for some time at a price of $4.50 under these cost conditions, this is not for you a long-run equilibrium price, this is not a price which will encourage you to continue in business indefinitely, producing the same amount. As your plant and machinery wear out, you will not be encouraged to buy new machines to replace them, but will rather invest your money somewhere else where it promises to earn at least a normal rate of interest. Unless something happens to raise the price (for instance, if a number of your competitors quit the business and so decrease supply; or demand increases), or unless something happens to lower costs, you will either leave the business voluntarily or, in the long run, be forced out through bankruptcy. That is why we say that this is not a long-run equilibrium price. *Hope* that the price might rise or that your costs will fall might encourage you to stay in business, operating at a loss, for a longer period of time than you would consider justified were you certain that present prices and costs would continue.

Now let us be really optimistic and assume some price above the cost of production, say, $9.00. What will be the optimum output at this price? Our guiding principle here is: *At any price above average total unit costs, the output at which marginal revenue is equal to marginal cost will be the point of maximum net profits.* The reason for this should be clearly understood. At any output less than this point, the addition to total revenue (marginal revenue) of a larger output would be greater than the addition to total cost (marginal cost) occasioned by the larger output, consequently, total net profits could be increased by expanding output. On the other hand, at any output beyond this point, marginal cost (the addition to total cost) of producing the last unit will be greater than marginal revenue (the addition to total revenue) occasioned by producing and selling the last unit, total net profits could then be increased by contracting output. Reading down column 8, we find that a marginal revenue of $9 00 would be equal to marginal cost at the output of 13 units At this output, total revenue is $117 00 and total cost is $94 40, leaving a total net profit of $22 60 No other output would yield a greater net profit The reader should note that this is true in spite of the fact that price would still be above cost at an output of 14 units At 14 units, total revenue, with price $9 00, would be $126 00, and total cost would be $105 50, leaving a net profit of only $20 50 If we assume that *no other sized plant* would have lower costs, this *individual firm* at a price of $9 00 would be in equilibrium at an output of 13 units

While we have just said that the *individual firm* would be in equilibrium under these cost conditions and at this price and output, $9 00 would not be an equilibrium price for the *industry* if there were no obstacle to the entrance of new firms (one of the conditions of perfect competition) If any new firm that might start up would encounter the same cost conditions, a price of $9 00 which yielded a clear net profit of $22 60 per day, or $6,780 00 per year after all charges for interest and wages of management had been allowed, would be bound to attract new competitors into the industry. If the conditions of demand remained unchanged (one of the assumptions of long-run equilibrium), the greatly increased amount of product thrown on the market would force the price down Where, then, will equilibrium for the industry be reached? *If there are no factors of production which are scarce in the industry or firm, and all firms have the same cost conditions, the industry will be in equilibrium at the point where price is equal to the minimum average total unit costs of each firm.* Any higher price would tend to encourage new firms to enter the industry, any lower price would tend to force some of the existing firms to leave it (For the short run, the immediate effect of a price above minimum average total unit cost would be to cause existing firms to expand their output to the point where marginal revenue was equal to marginal cost, but such a price would yield abnormal profit to every firm in the industry, and an inducement is immediately set up for new firms to enter. Under pure competition, such a price could exist only for the length of time necessary for the existence of the profits to be recognized by others together with the length of time necessary to put a new firm into productive operation.)

So far we have been assuming, for simplicity, that the existing firms in an industry were all of optimum size. To bring our theory of costs closer to reality, we must now remove that assumption. In attempting to expand output with the same plant and equipment, we found that the chief source of increasing average variable costs was due to the influence of nonproportional returns, caused by attempting to apply more labor to a fixed amount of plant. Our lowest average total unit cost ($7.10) with this plant was at the output of eleven units. At this point, average variable cost was $4.20, average fixed cost $2.90. If the plant is not already at optimum size, we might find, for instance, that an addition to plant and equipment might make it possible to double this output at the same variable cost with an addition to total fixed costs of, let us say, only $12.00 per day. This would make average fixed costs ($44.00—22) equal to $2.00, average variable cost equal to $4.20, and average total unit cost of $6.20. We could not say that this was a minimum cost for the larger plant unless we drew up the entire new cost schedule for the new cost conditions. However, we can clearly see that what we called equilibrium points for the individual firm above are equilibrium points only on the assumption that the firm is already at optimum size. Otherwise all that they show is what would be optimum outputs for the plant at its present size at various prices, and do not take account of the fact that it might be possible to achieve lower cost with a plant of a different size.

CHAPTER XIII

Long-Run Partial Equilibrium Under Pure Competition

WE DEFINE the long run as the *time necessary to achieve equilibrium within an industry* We can be slightly more definite if we say that it is the time necessary to construct new plant and equipment, or, for plant and equipment to be disinvested (that is, to wear out and not be replaced) It is assumed that there is no change in production techniques and no new inventions Under these conditions the supply and cost curves for an industry or firm will be identical if pure competition prevails

The Planning Curve

Now, when a new firm is considering entering an industry, it is, of course, not burdened with any fixed plant or equipment, nor is it committed to a plant of any particular size It is free to make its decision on the basis of what it considers will be the optimum size of plant The cost curve that would confront such a firm before it starts has properly been called a *planning curve*.[1] Let us try to construct such a planning curve The only element which might now truly be considered a fixed cost regardless of different possible plant sizes will be the wages of management necessary to induce the owner or output it is desired to increase production by one more unit per year, to do so by adding a machine would mean a machine cost for that unit of $45 00 If we wished to increase output by 500 units, adding a machine to do so would mean a machine cost of only 9c per unit on the added units Obviously, if only a small addition to output is desired, it will be better to work a smaller plant beyond its optimum capacity rather than enlarge the plant Thus, in the diagram, although point *P* is on a rising part of the cost curve for one sized plant, to shift to a larger plant in order to produce only one or two more units would jump average costs up to point *P′* on the next cost curve The point where it would just pay to shift to a larger plant is the point where one small curve intersects the next, that is, the point where average total unit cost of the smaller plant is just equal to that of the next larger plant For the purposes of subsequent diagrams, however, we shall draw the planning curve *CC* as a smooth line, assuming that we are interested only in such large changes in output as to make the best use of the added facilities

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[1] Professor Schumpeter uses this term in classroom presentation I am not aware that it has appeared in print elsewhere

Decreasing and Increasing Costs

The reasons for the declining slope of *CC* are the ***economies of large-scale production.*** First, there is the fuller utilization of indivisible factors (in this case, the owner's services of management) [3] In addition, there are possibilities of better division of labor For example, in a small factory, workers would all grind their own tools, wasting time whenever they went to the emery wheel In a larger factory it would pay to hire one man to do nothing but grind tools while the others remain steadily at their machines Specialization of workers increases efficiency, but becomes feasible only as output is large enough to employ workers full time at each task The use of certain kinds of machinery is also often feasible only with a large output For instance, a conveyor system costing $200 00 per week to operate may be capable of replacing 20 laborers at $25 00 per week (a labor cost of $500 00) The machine cost of a fully utilized conveyor is then only two fifths of the labor cost for the same kind of work But for a small factory which uses only four men at this kind of work at a labor cost of $100 00, it would not pay to install a conveyor The same principle applies to hired executives of particular efficiency It would not be good business to hire Alfred Sloane at his present salary to manage a small retail shop, but it might be advisable to pay this much or more to hire him to run the purchasing activities of a large-scale firm Another economy of large-scale production might be the possibility of a lower price for raw materials when bought in carload lots While decreases in cost of this sort are very great as between the smaller sized plants and the next larger ones, the fall in costs will not continue at the same rate as the plants become larger and larger

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[3] External economies may become internal whenever the firm is large enough

If we continue to retain the assumption *that there are no scarce factors of production,* that is, that the factors of production are in perfectly elastic supply to the individual firm, the only factor that would operate to cause the cost curve to rise eventually as a larger sized plant is adopted would be the *diseconomies of large-scale management* As the plant becomes larger and larger, the central managing authority is less and less able to give its attention to details If any pretense of efficiency is to be maintained under these circumstances, more and more authority must be delegated to subordinate managers and foremen But there are limits to which such authority can be delegated with success If left entirely to itself, one department might increase its own efficiency at the expense of other departments and consequently at the expense of the general efficiency of the plant If disputes are to be avoided, the central authority must exercise at least a coordinating function However, each time a subordinate official must consult the central authority, he wastes time which he might have spent on his routine work, and there is, of course, a limit to the number of such questions that the central authority can handle The usual solution to this problem is to set up rules for the guidance of subordinate officials But the more specific the rules, the less they will fit the different situations which may arise and the more occasions there will be to consult the management The more general the rules, the more probable will be failure in coordination, and the more dependence must be placed on the judgment of the subordinate officials The point at which this influence toward increasing costs will tend to overcome other tendencies to decreasing costs will be different for different industries

Conditions of Equilibrium Under Pure Competition

Under pure competition, so long as any individual firm is of less than optimum size, there will be no point of equilibrium for the industry Any firm of less than optimum size can lower its costs by increasing its output It will be able to sell a greater output by cutting its price just under competitors' prices, and thus, under pure competition, selling all of the product it wishes at the expense of the other firms The other firms, in order to meet this competition, must lower their price, and in order to do so will expand their output to achieve lower costs If the demand is not sufficient to take the full output of all the existing firms at their optimum size, some of the firms will be forced out of business, the business being divided up among the few firms that remain The persistence of decreasing costs for the individual firm over a wide range of output is thus one of the forces tending toward oligopoly[4] or monopoly when the demand is not large enough to retain a large number of firms in competition at optimum output.

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[4] See Ch XXVI on General Equilibrium under Monopolistic Competition"

If there are no scarce factors of production and no impediments to the entry of new firms, the industry will not be in equilibrium while existing firms are greater than optimum size Even though all the existing firms might be content to continue at a price which was equal to marginal cost of the larger output, thus making a profit from the difference between price and average cost, new firms would be free to start plants of the optimum size and undersell the existing firms, forcing the existing firms to take a loss until they can contract their plants to the optimum size If we draw up a long-run supply curve for the industry under these conditions, it will appear as follows

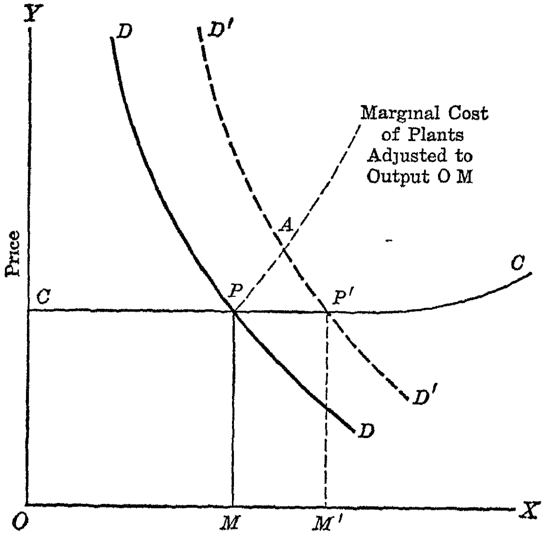

Diagram 2—Increase in Demand Under Constant Costs

In Diagram 2, *DD* is the demand or average revenue curve *CC* is cost of production for the industry and is identical with long-run supply price *PM* represents the equilibrium price, and *OM* the equilibrium output A considerable portion of *CC* continues horizontal, representing the addition to the industry of more and more firms each producing at its optimum output and at minimum average total unit cost The reason why the curve starts to turn upward after a while is that, although each firm is operating under identical cost conditions, as more and more firms are added to the industry, all would have to pay a higher price for raw materials or for labor so as to attract these factors away from other industries of increasing importance *

Although *PM* is a long-run normal equilibrium price, there is no reason to expect market price to be equal to it at any given moment The equilibrium price is the price that market price will reach if the same conditions of cost and the same conditions of demand persist long enough Thus, in the diagram, if demand increased (*DD* would then shift to the right to *D′D′*), the increased demand would first be met by an expansion of output by existing plants until the higher marginal cost of the increased output equalled the higher price Temporary market price might be at point *A*, but the tendency would be for new competing firms entering the industry to drive it down to the new equilibrium price of *P′M′* at the new equilibrium output of *OM′* A permanent decrease in demand would first force all firms to sell below average total unit cost at the point of least loss until some were forced out of business and the new long-run price was approximated

So far we have been assuming as a condition of constant cost that there were no scarce factors of production, that is, that the factors of production were in perfectly elastic supply to the industry We must now remove that assumption Obviously, the first units of factors to enter an industry will be those whose opportunity costs to the industry are lowest Those owner-managers whose opportunities of earning wages of management are poorest in other industries will be most attracted to a particular industry Or it may be those who are best in other industries but who find superior opportunity to exercise their talents in a new industry Of laborers of a given grade of efficiency, those will be hired first away from other industries where their services are of least value to their present employers Capital will be drawn first from other sources where it is earning the least return, the same will be true of land suitable for the type of enterprise in question If buyers wish more of the product than can be supplied by the units of the factors with the lowest opportunity costs, they will have to pay a price which will be sufficient to attract the units of factors with the next higher opportunity costs into the industry

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* This means, however, that the industry has passed beyond the point of constant costs

But the units of the factors already in use will be able to command a price equal to that of the units with the higher opportunity costs This difference between what a unit of a factor must be paid to retain it in the industry and the price it is able to get because of the necessity of paying higher prices to attract other units is sometimes called a *rent* This will be more fully discussed in Chapter XXIV

If this type of rent is not considered as a cost of production,[5] then equilibrium will be reached when the price is equal to marginal cost of the lower-cost firms and to minimum average total unit cost (and to marginal cost) of the highest-cost firms which remain in the industry These highest-cost firms will be the marginal firms, that is, the ones that are just induced to stay in the industry by the present price These marginal firms will be the ones to leave the industry first if the price falls

It should be noticed that these highest-cost firms are not necessarily the least efficient ones For instance, it may be that they have the most efficient managers, and hence managers most capable of commanding a high wage in other industries so that they will be the first to leave this industry if it does not give them a return equal to what they could earn elsewhere The same would be true of land If the price of corn drops, that land which will be withdrawn from corn production first will not necessarily be that which is worst suited to corn production, it may be that which is best suited to wheat production

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[5] It makes no difference in the determination of output whether this type of intra-industrial rent is considered as a cost or not If the units of the scarce factor with low opportunity costs are owned by the owner of the business, the rent will be a part of the net return which he is trying to maximize, and he will produce up to the point where marginal revenue is equal to marginal cost (not including rent) If others own the units, and he has to pay rent for them, he will produce to the point where marginal revenue is equal to average cost (including rent) Marginal cost (not including rent) and average cost (including rent) are the same, under these conditions

We are now prepared to sum up the conclusions we have drawn *Under pure competition, in the long run*—

(1) Price will have to be at least equal to minimum average total unit cost at the optimum output for any firm which is to remain in the industry

(2) There will be no competitive equilibrium for the industry while any firm is producing under conditions of decreasing cost (that is, if any firm is less than optimum size, or, if at optimum size, is producing less than the minimum average total unit cost output)

(3) There will be no competitive equilibrium if firms are greater than optimum size, and if free entry to the industry is possible for other firms under the same cost conditions

(4) If there are no scarce factors, price will be exactly equal to minimum average total unit cost, at optimum size, of all firms in the industry Production is then under conditions of constant cost as more firms are added

(5) If there are scarce factors, giving rise to higher factor prices as the industry expands, price will be equal to marginal cost (not including rent) of the lower-cost firms, and will be equal to minimum average total unit cost of the highest-cost firm which it is necessary to attract into the industry to satisfy the demand for the product

(6) If rent of scarce factors is considered as a cost, price will

be equal to minimum average total unit cost of all firms (See the discussion of rent in Chapter XXIV)

Notice that we have at least six "ifs" here Failure of any one of them to be fulfilled may either prevent equilibrium or destroy pure competition, replacing it by monopolistic competition or oligopoly

CHAPTER XIV

Problems of Agricultural Policy

THE MUTUALLY interrelated problems that may be grouped under the general heading of "the farm problem" have much with which to challenge the interest of the serious student of economics, since they involve the application of almost every principle of economic theory As with many other questions of national economic policy, the problem is political as well The pure economic theorist may propose a solution for the farm problem which is based on sound economic logic, the administrator, however, who attempts to put such a plan into effect must face the realities of both domestic and international politics His question is not so much "What is the best plan?" as it is "What is the best plan which can be adopted in the existing political situation?" As regards any particular measure, it is not simply a question of "Is this measure desirable?", but rather "After all the political concessions that will be necessary to secure its adoption have been made, will this measure still be desirable?"

At the very outset the question, "Is there any justification for special aid to the farmer?" must be proposed In opposition to such aid it is urged that the farmer as a business owner stands a chance to make a profit and assumes a risk of loss, therefore, there is no more and no less reason to aid him in bad times than to rush to the aid of a manufacturing capitalist who suffers reverses. The farmer who, when wheat is selling at

$2 00 a bushel, mortgages his own farm in order to buy an additional farm is a land speculator and deserves no better fate than an urban real estate speculator who makes a similarly unwise investment In many cases changes in taste and dietary habits have decreased the demand for certain farm products, but the danger of these changes occurs constantly to manufacturing producers, and nobody takes up collections for the destitute ex-manufacturers of hoop-skirts The mere fact that the farmer is in bad straits seemingly would entitle him to exactly as much, and no more, consideration than we give to the unemployed industrial worker

In spite of these arguments, there are certain grounds on which the farmer may legitimately, and with self-respect, claim the consideration of his problems by the Federal Government and the American people The farmer is injured by the special privileges which are granted to other groups The American tariff policy forces the farmer to buy in a domestic market while he must sell in a world market Clothing, building materials, and household goods are all protected by tariffs which raise the price that the farmer has to pay for them Corn, wheat, cotton, tobacco, and the other major crops are produced in such quantities that an exportable surplus results, and it is the price which prevails in world markets which determines the domestic price for such products

There are other inequities besides the tariff Labor unions are allowed to organize quasi-monopolies of their craft to raise wages, which practice increases the prices of many of the products that the farmer must buy Most of the products which the farmer must buy are either produced by monopoly or by firms operating under conditions of monopolistic competition One of the chief reasons for the plight of the farmer is that agriculture in general is one of the few branches of industry in which conditions approaching those of pure competition still survive It is not an exaggeration to say that the farmer must sell in a highly competitive market, while most if not all of the nonagricultural products which he has to buy are produced and sold under conditions of varying degrees of monopolistic price control

A very brief review of the historical changes which have taken place in American agriculture may put us in a position to understand better the present agricultural problems Even in Colonial times, American agriculture was on an export basis Wheat, corn, tobacco, and later cotton were and have continued to be the principal crops upon which the farmers of this country depend for cash income Even in these early days, the demand situation prevailing in European markets was one of the very important factors influencing the price which American farmers received for these crops However, when we probe more deeply into the matter, we discover many contrasts between the situations prevailing under early farming and those that prevail at present The early development of American agriculture paralleled in time the industrial progress of England, and presently of the United States Both in Europe and to a lesser degree in America, people were concentrating in industrial manufacturing cities and population was increasing rapidly Consequently, the demand for agricultural products, both foodstuffs and agricultural raw materials, was an ever-expanding one The chief problems which confronted the United States then were simply those of expanding agricultural production and providing adequate means of transportation to bring the agricultural products to hungry cities Farmers suffered occasionally from drought and other adverse weather conditions, as they always have and probably always will, but where transport facilities were adequate, for farmers to suffer from a surplus of agricultural production was a condition that was almost entirely unknown Particularly heavy crops did depress prices and cause farmers to grumble, but such a thing as a general surplus of practically all agricultural products was unheard of

Agricultural problems before the twentieth century were chiefly and almost solely problems of production Practically all agricultural leaders devoted their efforts to increasing the yield and improving the quality of agricultural products The workers of the natural sciences became the chief helpers of agriculture New varieties of plants better able to withstand the climatic conditions of various localities were developed, means of controlling insect pests were studied and perfected, scientific breeding improved farm animals, new systems of crop rotation tended to retain the fertility of the soil This process is still going on and improvement is still being made in the means of agricultural production However, the primary problem of the American farmer at the present time is not so much how to produce a crop as how to dispose of it at a profitable price once he has produced it

Perhaps one single fact may make us realize vividly the change which has taken place in agricultural production: In 1787, the year the Constitution was framed, it required 19 people living on farms to feed and clothe one person in the city, in addition to feeding and clothing themselves, today 19 people on farms can provide for the agricultural requirements of 66 people living in cities[1]

Production Responses to Price Changes

Since agriculture is characterized by conditions closely approximating those of pure competition, we should expect to find marginal farms dropping out of the production of various crops as prices fall and new farms beginning production as prices rise The theory states, however, that these changes may be expected to take place "in the long run" These changes do take place in practice but the increases in units of production in response to rising prices are much more rapid than the decreases in production units following falling prices Several factors account for this difference

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[1] Secretary of Agriculture Henry A Wallace, in a speech at Des Moines, Iowa, August, 1938

Some crops require either special machinery or special methods of production Rice, for example, requires extensive irrigation When, in response to a higher price, irrigation facilities have been provided, the tendency is for the farmers to try to hold on for a few years in an attempt to realize something on the investment It usually requires about three successive years of low prices to cause any substantial reduction in rice acreage, many other crops require more than one year of low prices to cause acreage reduction In the case of tree-grown crops such as fruits and nuts, responses in actual production to changes in price are much slower both in increases and declines A few years of relatively attractive prices may cause expansion of orchards but these trees do not begin to bear fruit for several years Once they are bearing, even several years of low prices may still find the grower reluctant to cut them down Aside from vagaries of nature, the only force operating to decrease production will be the failure to replace old orchards and old trees as they die or cease to bear If he can avoid it, the grower will not ordinarily pick the fruit unless the price promises to cover the cost of picking and marketing Unless weather damage or insect pests decrease the crop, prices may remain at or near this low (variable cost) level for several years without causing a substantial decrease in production.

Many types of soil and climate are technologically suited to the growth of a wide range of crops When we take freight rates and marketing facilities into account, however, we find that the number of commercially feasible crops is considerably below the number of botanically adapted crops in most localities Even crops which are closely related in methods of production may exhibit considerable marketing differences For example, many parts of the Western cattle range country are equally well suited to the grazing and care of milk cows They are too far away from large cities, however, to allow shipment of fresh fluid milk or even the production of evaporated milk and butter and cheese, and the higher freight rates prevent them from competing with the present milk-producing areas which are closer to the centers of consumption The development of refrigerator cars and fast freight service in recent years, however, has had a tendency to widen the number of commercially feasible crops for many localities The South has benefited particularly by this development, since Southern truck crops mature earlier than those in the North and they are able to command an early season premium in price which helps to overcome the cost of the long haul

When the number of commercial crops is sharply limited, either by natural or economic factors, even shifts from one crop to another may avail little in relieving the farmer from the effect of disastrously low prices For example, in some parts of the Southeast the two chief crops competing for the use of the land are cotton and peanuts Any large shift from cotton to peanuts in response to low cotton prices may find the farmer receiving as low or lower cash return per acre of peanuts as he would have had if he had continued to raise cotton While the elasticity of demand for peanuts may be somewhat greater than the elasticity of demand for cotton, it is not great enough to prevent serious declines in price if there is a great addition to the supply

Even before World War I, when agriculture was more prosperous, many farmers had the bitter experience of shifting their entire acreage from one crop to another, only to find themselves one year behind the price changes in the market This kind of experience has led many of the more conservative farmers to give up attempting to forecast prices and instead to divide their land among a few of its best uses in the hope that price fluctuations in the various crops will cancel out to yield them a more stable income Other farmers may be led by experience to hold steadily to a single crop in the hope of "making a killing" when years of high prices occur Some potato growers in Idaho figure that they can afford to stay in business on one good price year out of five, and that with two or more good years out of five they will show a profit Either of these practices, if followed by any considerable number of farmers, has a strong tendency to delay acreage changes in response to price Supply is thus inelastic for short periods

So far we have been discussing simply the influences affecting acreage changes as the determinant of agricultural production The number of acres planted to a given crop is the one factor affecting production which is most subject to control in accordance with the judgment of the farmer as to anticipated prices If, for the moment, the question of government control (or influence) is ignored, the only important element other than price that will be apt to deter the farmer from planting his intended acreage to a particular crop is the presence of unfavorable weather at planting time, which makes it difficult or impossible for him to work his fields Production, of course, is a function of yield per acre as well as of total acreage [2]

The yield per acre is a factor which is far less subject to the farmers' control than the acreage planted Weather is an important factor in determining the yield of all crops, and in many instances weather alone can spell the difference between a total crop failure and a record yield Nevertheless, assuming "normal" weather conditions, or similar weather conditions, in two or more successive years, there are many practices which the farmer may adopt which will tend strongly to influence the yield per acre and hence the total production He may use fertilizer or (within limits) he may increase the amount of fertilizer used, he may buy a variety of seed which is known to give greater yields, he may increase the number of times the field is cultivated, he may make a more active effort to control insect pests for which known remedies are available

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[2] Planted acreage is also the best single statistical measurement of the farmers' desires to expand or contract production of a given crop Fertilizer sales may give a rough indication of the desire to increase yields, but there is generally no way of knowing to what crops the fertilizer is to be applied

In general, the relation between changes in the price anticipated by the farmer and changes in the above practices to influence yields is somewhat more complicated than in the case of acreage variations If the amount which can be added to the yield by any one of these practices is known, we multiply it by the anticipated price to obtain the anticipated increase in total revenue If, then, the cost of the practice falls anywhere short of this sum, it will appear profitable for the farmer to act along these lines This is simply a rough approximation of our principle of equating marginal revenue and marginal cost

However, certain secondary influences present themselves, which may tend toward prolonging the increased yields even at much lower anticipated prices than the one which influenced the first decision When soil has been fertilized for a few years, a sufficient amount of fertilizer may remain in the soil to yield fairly large crops even though no more fertilizer is added for a year or two This, in fact, is a normal expectation When superior seed has passed the developmental stage and is produced in commercial quantities, its difference in price over poor seed is generally so slight that it pays to use good seed if the crop is to be planted at all After the crop has been planted, spraying or dusting for insect pests may be the only means of saving all, or any considerable part, of the yield It will then pay to spray or dust if the anticipated receipts from the crop (after harvesting and marketing charges are deducted) are anything above the cost of spraying or dusting itself, disregarding all previously incurred costs

In the case of farm machinery, farmers should figure depreciation and interest charges in addition to the operating costs, and make sure that all these costs will be covered by an increased value product before they purchase the machine (At this moment the cost is not yet incurred, hence variable) Yet farmers who do this may find that the price of the product falls and that the increased yield from greater cultivation does not return all these costs for the use of the machine Other farmers may not figure costs carefully at all—indeed many of them have bought tractors simply from the motive of having something to ride on rather than having to walk behind the plow or cultivator In any event, once the machinery has been purchased it will continue to be operated so long as the costs of fuel, oil, and repairs are less than the expected returns (Depreciation and interest will now be fixed costs)

Decreases in yields are due far more to weather conditions than to voluntary contraction by the farmer Methods of increasing yield, which are adopted in response to high prices, will be continued in years of low prices as long as the anticipated price of the product promises to cover the variable costs of their use The most important way in which lower prices may tend to reduce yields is by leaving the farmer short of cash or credit with which to buy fertilizer and equipment (Judging by the credit policies of fertilizer and equipment companies in many regions, this is not a serious factor at present) In most major crops produced in the United States the long-time trend of yields has been steadily upward Even in cotton, several years of low prices failed to discourage farmers' efforts to increase yields and the 1937–1938 season found fertilization, plus very favorable weather, producing an all-time record yield The tables which follow show the ten-year average yields in each of several major crops for the United

States and for certain states which may be considered typical The 1937–1938 season yields are also shown separately

Table III

TEN-YEAR AVERAGE YIELDS, UNITED STATES

	Wheat (bu)	Rye (bu)	Oats (bu)	Corn (bu)	Cotton (lb)	Tobacco (lb)	Potatoes (bu)
1870–79	12 5	10 8	26 1	26 5	195 3	754 7	83 9
1880–89	13 2	12 1	28 0	26 0	184 5	712 5	83 0
1890–99	13 7	12 7	27 2	26 0	201 8	754 2	82 6
1900–09	14 4	13 3	28 8	27 3	193 4	824 4	94 9
1910–19	14 2	12 5	31 0	26 0	193 1	808 4	97 2
1920–29	14 0	12 7	29 7	26 9	171 6	772 8	110 6
1930–38[1]	13 3	11 7	27 4	22 8	206 2	820 4	111 4
Crop Year 1937–38	13 6	12 9	32 7	28 2	264 6	897 1	123 1

[1] Nine year average

Table IV

TEN-YEAR AVERAGE YIELDS, IMPORTANT STATES

	Wheat Kansas	Rye N Dak	Oats Iowa	Corn Iowa	Cotton Miss	Tobacco N C	Potatoes Maine
1870–79	13 6		33 9	37 4	208 6	470 7	108 0
1880–89	13 9	10 1[2]	33 7	34 7	196 9	398 7	114 1
1890–99	13 4	10 8	31 8	34 3	209 5	536 7	129 4
1900–09	13 8	13 3	30 6	38 1	203 5	622 8	175 8
1910–19	13 5	10 3	37 3	38 9	185 5	647 2	206 4
1920–29	13 2	12 0	35 4	40 1	197 7	675 8	246 5
1930–38[1]	12 3	10 1	31 4	35 6	245 8	794 8	269 9
Crop Year 1937–38	15 1	10 8	45 0	45 0	368 0	884 0	287 0

[1] Nine year average
[2] Eight year average

These tables do not give an entirely true picture of the increase in productive efficiency of farming for this period During the last two or three decades covered by the tables, production of grains and potatoes has been widely extended in the "dry land regions" of the West The relatively poor showing of wheat, rye, and oats is due partly to the spread of "extensive" farming methods and partly to dust storms occasioned by the type of farming The fact that the average yields for the country as a whole have continued to increase despite the inclusion of these poorer lands in cultivation is evidence of a still greater increase in efficiency than that shown by the yields On the other hand, the fact that acreage control programs, particularly in cotton and tobacco, have been in effect during the 1930–1937 period may tend to distort the picture in the other direction Farmers who are given an acreage allotment will naturally take their least productive acres out of cultivation

Farming of New Land and Farm Abandonment

The above discussion of production responses to price changes dealt with adjustments made by a farm which continues in operation, that is, one which continues with shifts and variations from one crop to another and in attempts to secure high yields There is one other way in which production may vary in response to price, that is, in the organization of new farms on previously unused land in response to high prices and the abandonment of old farms as prices fall Both of these responses are apt to be slower than shifts from one crop to another, but even here increases in production in response to price tend to take place much more rapidly than decreases in production due to farm abandonment The prospect of a few years of high prices may make it appear worth while to work lands of comparatively low fertility which it would not pay to cultivate at lower prices High prices may also make it appear profitable to clear "waste land" of underbrush and stones and bring it into cultivation

It may take several successive years of low prices in most of the possible alternative crops to cause much reduction in production through farm abandonment Mere foreclosure of a mortgage does not mean that a farm is taken out of production When a mortgage is foreclosed, the holder of the mortgage has a choice among three courses of action He may allow the farm to be sold for what it will bring at public auction, in which case the buyer will continue to operate the farm, or he may bid the farm in himself and then either operate it or rent it to someone else (perhaps to the previous owner) Even if no other buyer makes an offer, we may be sure that the mortgageholder will attempt to operate the farm as long as there is any prospect at all of recouping some part of his losses Generally this means that for some few years the farm will continue to be operated as long as the anticipated returns promise to cover the additional costs of a year's operation If taxes have been paid up to date, these variable costs need not even include taxes The operator can gamble on one year's return and if this does not include enough to pay taxes, he may allow the county or state to seize the land at a tax sale and keep in his pocket whatever income there is above other costs Lack of alternative occupations, particularly in business depressions, is another factor operating to delay farm abandonment

Taking a farm out of production is thus seen to be a very slow response to price More rapid abandonment is usually occasioned by dust storms or other natural calamities which make the prospects appear poor for raising any crop at all, regardless of price Farm abandonment in response to several successive years of low farm income is usually preceded by a period of several years of cutting costs, those most commonly dispensed with being fertilizing, terracing, and other soil-building practices The farm is not usually abandoned until it is "worked out" If there is any danger that we will be threatened with a shortage of arable land in the future, there is thus some justification for the payments made by the Agricultural Adjustment Administration for "soil-building practices"

After all the above influences have been allowed for, there is one still more important reason why agricultural production is not voluntarily controlled in an effort to govern price Since each individual farmer is responsible for so small a part of the total production of any crop, each one realizes that he cannot affect the price to himself by the infinitesimal amount which he individually may withhold from, or throw on to, the market It requires the reduction of output by all, or a very large number of, farmers to raise the price from the supply side of the market The only consideration which will cause substantial voluntary reduction of acreage (without agreement, benefit payments, or compulsion) is the firm belief of a great proportion of farmers, prior to planting time, that the price of the crop will be very low Cultivators of particular crops have assembled in meetings from time to time and counseled each other to reduce acreage Usually the more they believed one another's promises, the more they believed that the price was going to be high Consequently, it frequently happened that each farmer went home and planted, not less, but more acreage than the year before

The question may be argued as to whether control of agricultural production is desirable If it is conceded that such control is advisable, it must be obvious that the initiative of the individual farmer cannot be relied upon to achieve it Planted acreage depends mostly on the price forecast in the mind of each individual farmer If all farmers believe the price will be high, it is likely to be low If all farmers believe the price will be low, it will probably be high When "balanced agricultural production" has been achieved, it has usually been the result of a happy and fortuitous combination of right and wrong guesses on the part of the farmers

Problems of Farm Valuation and Farm Debt

The value of a farm is its capitalized net income That is, if the annual average net income of a farm is divided by a given rate of interest, the result is the capital sum which would have to be invested at that rate of interest to yield a similar net income This formula, however, does not begin to solve our problem The true value of the farm must be based, not on the past net income, but on the anticipated future net income If the farm has been properly cared for and not "worked out," the past yields may give us a fair indication of the average production to be expected in the future, but former prices are most unreliable as a guide in determining the prices at which those future yields may be sold

There is always a danger that farms will be overvalued after a few years of high prices Wars, crop failures in other parts of the world, and violent upswings of the business cycle may each result in short periods of high farm product prices In these periods prospective buyers of farms are always apt to pay too much attention to the net income of the past year or two and fail to realize that the high prices and consequent high net income cannot be expected to continue As a result they rush to buy farms at excessively high prices and commit themselves to mortgages in order to buy them Bankers and other lenders in farm communities have usually been equally shortsighted in extending excessive mortgages on overvalued farms during periods of high prices

When a few years of low prices follow a period of high prices, farmers who have bought farms at inflated values find that they are unable to meet even interest payments on the mortgages, to say nothing of making repayments on the principal sum Such times usually find some farm groups demanding "more liberal" farm credit while others are asking some form of price inflation or farm aid

Liberal credit in the form of government or government-guaranteed loans at interest rates lower than market rates of interest can save the farmer only if his farm has not been too greatly overvalued and too greatly mortgaged To see how this works, let us assume that, when wheat is selling at $1 50 per bushel, a farmer with $3,000 cash buys a farm for $10,000, giving a $5,000 first mortgage at 6 per cent and a $2,000 second mortgage at 8 per cent for the unpaid balance. (To keep the problem simple, we will assume that wheat is the only crop for which the land is fitted) Various possible circumstances are shown in the following table

TABLE V

Price of Wheat	Farm [1] Net Income	Farm [2] Value	Interest on $5,000 1st Mortgage	Interest on $2,000 2nd Mortgage	Debt Repaid	Unpaid Interest
$1 50	$600	$10,000	@ 6% $300	@ 8% $160	$140	
1 00	360	6,000	@ 6% 300	@ 8% 160		$100
1 00	360	6,000	@ 3% 150	@ 4% 84[3]	126	
80	200	3,333	@ 3% 150	@ 4% 84		34

[1] These figures are assumptions perhaps in rough accord with facts

[2] In calculating farm value, we assume a rate of interest of 6 per cent in each case, which is, of course, an oversimplification

[3] Second mortgage is increased by $100 to cover previous unpaid interest

The first line of the table shows us the farmer's expectations when he buys the farm After meeting all other expenses he would have $140 to apply on paying back the principal on his mortgages (We assume that his living costs, which we deduct in computing net income, are met out of his own wage as a farmer Properly speaking the interest charges are also costs, but in our table we wish to show the relationship between these charges and the cash available to meet them) Under these circumstances, if the farmer continues to pay the $140 each year plus the interest charges saved by its repayment, he will be able to pay off the second mortgage in about ten years and the first mortgage twelve years after that In twenty-two years he would own a $10,000 farm free of debt if the price of wheat stays at $1 50 and if average yields and other costs remain unchanged

The second line of the table shows the situation in which the farmer would find himself if, in the first year after he bought the farm, the price of wheat should fall to $1 00 The farmer's original investment of $3,000 has been wiped out; the value of the farm is $1,000 less than the combined amount of the first and second mortgages, and $100 of the interest charges remains unpaid. The farmer may be threatened with foreclosure if this situation continues.

The third line of the table represents the situation as it would be if some government farm credit agency offered to take over the existing debt of 3 per cent on the first mortgage and 4 per cent on the second mortgage. If the price of wheat remains steadily at $1.00, even with these liberal interest rates it will now take the farmer thirteen years to pay off the second mortgage and an additional eighteen to pay off the first mortgage. If, however, the farmer does not expect the price of wheat to rise above $1.00, he would be unwise to accept these terms at all. By accepting these terms, if the price of wheat does not average higher than $1.00, he would be paying $7,100 for a farm worth $6,000 in addition to the $3,000 already lost. He would do better to allow the farm to go at a foreclosure sale and then either rent a farm or try to buy one at a value more in line with the price of wheat. Nor should the credit agency take over the mortgages on these terms if there is any expectation that the price of wheat will average $1.00 for a number of years. It should insist that the mortgages be scaled down before it assumes them. The only consideration that would justify the terms shown in line 3 of the table is the firm belief on the part of all concerned that the price of wheat will rise shortly and will average higher than $1.00 for long years to come.

Let us suppose, for a moment, that such a price rise is anticipated and the terms are agreed upon. Line 4 of the table shows what would then happen if, instead of rising, the price of wheat should decline to 80 cents and promise to remain there. The value of the farm would drop to one-third of its original purchase price, and the farmer would lack $34 of even meeting the low interest charges, without paying a cent on the principal

We find, then, that more liberal credit is of real help to the farmer in times of low prices only if the farm has not been too greatly overvalued when originally purchased and only if prices may be expected to rise again soon The table also illustrates the fallacy of the old rule which regarded 50 per cent of the value as a "conservative" loan Fifty per cent of value is conservative only on conservative values and not on valuations based on prices that are temporarily extremely high

There is, however, a sociological reason for special consideration of the problem of farm mortgages Urban businessmen who go bankrupt are usually found to have their homes in their wives' names so that they do not lose them, but the foreclosure of a farm mortgage usually means the loss of a farm family home Also, a farm mortgage usually covers the farmhouse as well as the land and other farm buildings Even if the farmer were able to keep his home after a foreclosure, it might be of very little use to him if he is forced to seek work in some distant locality Farm owners are always known to be a conservative group, but a group of dispossessed farmers, or of those threatened with the loss of their farms, will be ready to follow any crack-pot who promises them relief

Inflation as a Remedy for the Farm Debt

Inflation offers a dubious solution of the farm mortgage problem from the point of view of the individual farmer, and no solution of the problem at all for the country as a whole In order for the farmer to free himself from mortgage debt through inflation, the prices of farm products must rise more than the prices of the goods and services the farmer buys and *must remain higher* for a sufficient length of time for him to be able either to pay off the mortgage or to sell the farm at its higher valuation Unfortunately, no formula has yet been devised by which prices can first be inflated and then stabilized Both experience and plausible economic theories indicate that every period of inflation is followed by one of deflation, nor has any monetary scheme yet been propounded for inflating the prices of one category of goods (for example, farm products) without also raising other categories

If a farmer sells his farm during a period of inflation and another farmer buys the farm at the inflated value, giving a mortgage as part payment, the identity of the debtor is changed but the farm mortgage problem still remains for the country as a whole Farm prices rose steadily and rapidly from 1921 to 1925 and remained at a high level until 1929 (the index of farm prices rose from 128 to 154 from 1921 to 1925 while the index of prices paid by farmers rose only from 152 to 157), yet the number of farmer bankruptcies in 1925 was over five times as great as it was in 1921, and even in 1929 it was three times as great as in 1921 In 1933 the United States devalued the dollar in an avowed attempt to improve farm prices (among other reasons) Table VI (page 239) shows what has been accomplished towards debt reduction

It is unfortunate that for many of the items in the table data are available only for the census years 1930 and 1935 While the table shows a considerable improvement in the farm mortgage debt situation, little, if any, of this improvement can be credited to the devaluation of the dollar All of the following influences were at work to reduce mortgage debt. (1) A considerable amount of the debt was reduced by mortgage foreclosures (if the mortgageholder resold after foreclosure, the new mortgage was undoubtedly smaller in recognition of the lower value of the land) (2) From 1933 through 1937 the Agricultural Adjustment Administration paid out over two billion dollars, much of which went to the owners of mortgaged farms (3) Agricultural prices were improved during this period by (a) crop curtailment under the A A A,

(b) the drought, (c) purchases of farm products by the Federal Surplus Commodities Corporation, (d) the failure of the Canadian wheat crop, (e) accumulation of foodstuffs by European countries as a result of war scares, (f) cotton loans above market values When all these influences are taken into consideration, it is difficult to credit dollar devaluation with much effect in raising farm prices, to say nothing of mortgage reduction, in which causes (1) and (2) must likewise be taken into account

TABLE VI

FARM PRICES, FARM MORTGAGE DEBT AND RELATED STATISTICS

	1930	1931	1932	1933	1934	1935	1936	1937
Index of Farm Prices	126	87	65	70	90	108	114	121
Prices Farmers Pay	145	124	107	109	123	125	124	130
Farm Mortgage Debt (Billions of $)	9 21					7 64	7 50	7 25
Number of Mortgaged Farms (Millions)	2 53					2 35		
Average Debt per Mortgaged Farm	$3,652					$3,253		
Value of Agricultural Capital[a] (Billions of $)	57 7	51 9	43 7	36 2	37 2	38 6		
Farm Mortgage Debt as Per cent of Value of Agricultural Capital[a]	16 0					19 8		
Farm Foreclosures[b]	20 8	26 1	41 7	54 1	39 1	28 3	26 2	22 4

Source *Agricultural Statistics 1938* and *Agricultural Finance Review* Vol 1, No 1 U S Department of Agriculture

[a] Value of all agricultural capital No figures available for value of mortgaged farms alone

[b] Number per 1,000 of all farms changing hands by forced sales and related defaults

If present farmers are to be freed from debt by means of inflation alone, there will have to be an inflation equal to that which occurred in the period ending in 1929 and, as a consequence, the country will perhaps have to suffer a depression like that of 1932, or worse Even such a course would not solve the farm mortgage problem for the country. Undoubtedly there would be farms sold and mortgaged at the high valuations of the inflationary boom and a new crop of farm debtors would be asking for aid in the inevitable depression

Farm Mortgage Debt and the Nature of Competition

Since agriculture is characterized by conditions closely approximating those of pure competition, economic theory teaches that there is a persistent tendency for prices to be equal to the cost of production Therefore, there is no ordinary surplus income to be expected out of which a farm mortgage can be repaid There are only a few conditions under which a farmer can hope to repay a mortgage out of the receipts from the sale of farm produce (1) If the farm is purchased at a price sufficiently below its eventual value, the surplus income is available for mortgage payment (2) If the farmer is able to pay a sufficient portion of the original purchase price in cash, by not spending the interest of his own investment, he may have funds available for mortgage repayment (3) If the farmer uses a large family as farm hands without paying them, he may use what would have been their wages for mortgage repayment (4) If the farmer is a more competent farmer and farm manager than the average, his superior ability may increase yields or lower costs so that some surplus will be available for mortgage payments (In a perfectly competitive economy he could secure the same return as a wage by being a hired farm manager, but from lack of opportunity for such employment people may not recognize his ability so that he may have to run his own farm to secure the equivalent of a fair wage) (5) Better than normal weather conditions in a particular locality may produce a surplus income through higher yields, provided that yields are not high enough in other parts of the country, or the world, to depress prices unduly.

Most of these conditions involve a considerable amount of self-denial on the part of the farmer in order to repay the mortgage Whenever a farm is sold at a price which represents the full capitalized value of its economic rent, mortgage repayment is apt to prove extremely difficult if the mortgage represents a major proportion of the original purchase price When we consider that in many parts of the country farmers have also been obliged to obtain short-term credit for seed, fertilizer, and payrolls on distinctly disadvantageous terms, the wonder is not that so many farmers fail, but rather that so many of them finally manage to own their farms The answer is to be found partially in the very low standard of living of many farm families A great many of those who manage to own their farms free and clear of debt will be found to have purchased their farms at depressed values Comparatively few of those who purchase farms in years of inflated values will be able to hold on to them Again we are confronted with the problem of forecasting, not only must the farmer be a forecaster to determine what crops to plant, he must forecast the general course of farm prices before he even buys a farm, if he is to be successful

Methods of Raising Farm Income

No one who is at all familiar with agricultural conditions will contest the statement that farmers in many large sections of the country have been suffering, and in many cases are still suffering, from a prolonged and serious period of greatly reduced incomes The merits and defects of the farmer's claim to special consideration by the government have already been discussed Regardless of whether one approves of farm aid or not, political realism will indicate that the strength of the farm vôte will insure some form of attempt to improve farm income regardless of which party is in power It is, therefore, very much to the point to examine the various measures, proposed or in operation, which are designed, to increase farm income

Export Subsidies

Although they differ as to the mechanics involved, many farm aid programs include as one of their main features some form of subsidy to encourage export of "surplus commodities" All export subsidies are open to two very serious objections (1) Importing countries are very likely to impose higher duties to offset the subsidy (2) Exporting competitor countries are also likely to give subsidies if the United States starts the practice (Our present export subsidies on wheat and flour were introduced to meet the competition of various forms of export aid given by Canada and, since our program started, Australia and the Argentine have followed suit) To the extent that either of these methods cancels the effect of the original subsidy, the subsidizing governments will be losing money without aiding the farmers at all Offset (1) enriches foreign treasuries at the expense of our own Offset (2) means giving the foreign consumer the benefit of low prices if importing countries do not raise tariffs If the subsidies given by all competing exporting countries are equal, no one country is likely to gain in exports at the expense of the others. If the demand of the importing countries is very elastic, total exports of all subsidizing export countries may be increased If the domestic demand is then less elastic than the foreign demand, total increase in income to the farmers as a result of this form of price discrimination against domestic consumers might possibly exceed the cost of the subsidy to the government In many crops there is grave danger that the cost to the government might exceed the benefit to the farmer, even if foreign tariffs were not raised Under such circumstances, it would be much better to pay the cash directly to the farmer rather than to make part or all of the cash a gift to the foreign consumer or to the foreign government

A variant of the subsidy scheme is the proposal to set a fixed and profitable price on the part of the crop that is sold in the domestic market and "to sell the rest for what it will bring" in the world market It is now being pushed politically under the slogan of "guaranteeing to the farmer the cost of production on crops sold domestically" This may sound fair and appealing to the man on the street, but the student of economics need not be considered cynical if he starts asking some embarrassing questions What do they mean by cost of production and how will it be calculated? Is a separate cost to be calculated for each individual farmer on each crop? A force of one million men could hardly do the job in a year's time, even if all farmers kept an accurate set of books, which most of them probably do not (Perhaps this is a way of solving the farm problem—there might be so many men working for the Department of Agriculture that there would be nobody left on the farms) Or is the marginal or average cost of the highest cost farmer to be taken as a base? If this is the case, overproduction will make present surpluses seem small by comparison Or is someone to make an inspired statistical guess as to what constitutes the "typical" or "average" or "bulkline" cost of production for each crop? Such a program would arouse howls of protest from producers whose cost was higher than the estimate and would probably still constitute an incentive for lower cost producers to expand output We have said nothing about the problem of setting different prices for different grades of each crop (In some crops, tobacco for example, the number of grade and type combinations runs well up into the hundreds) May we be pardoned for asking what is meant when we are promised a "guaranteed price equal to cost of production"?

Leaving aside the cost problem, the higher the arbitrary price is set, the lower will be the amount of domestic consumption and the greater the proportion of the crop that will have to seek foreign markets Our exports have been disappointing in volume even at the fairly low prices of recent years It is difficult to compute what prices would be necessary to move all of the large surpluses abroad Still, a low export price will not act as a deterrent to the individual farmer Again we are confronted with the fact that no individual farmer acting alone could depress the world price by expanding his own production, but this would certainly be accomplished if all farmers acted in concert to expand production The plan offers an additional motive to each farmer to expand He is guaranteed a "fair return" on part of his crop and so is in a better position to take a gamble on the rest The bitter experience of many other countries demonstrates that prices cannot be controlled for long without controlling production

Relief Purchases of Surplus Farm Products

The purchase of surplus farm products for relief purposes offers many attractions Certainly we are all horrified by the spectacle of "people starving in the midst of plenty," and the distribution of surplus agricultural products would be a means of attacking the problem As far as the relief measure for the unemployed is concerned, the only question which can be raised is whether the method of government purchase and distribution is cheaper than that which would prevail if relief clients were paid cash and allowed to make their own purchases Even if this question is decided in the negative, the claim might still be made that a wisely paternalistic government may provide the people with a more nutritious and better-balanced diet than they would buy for themselves

When, however, the avowed aim of these purchases is to improve distressed farm prices, and the relief objective is made somewhat secondary, some other questions of theory must be considered In the first place, if the government agency purchases at prices much above those prevailing in the market, it is faced with three somewhat unpalatable alternatives (1) It must be prepared to buy any amount up to all of the crop which is offered for sale at the price, or (2) it must be prepared to face charges of favoritism in buying at the high price from some farmers and not from others, or (3) it must devise a cumbersome and probably extremely expensive system of prorating purchases among all growers of the crop (Even this last method will probably be criticized by individuals who feel that more of their own or less of their neighbor's crop should have been purchased)

By far the better method of purchase is the "offer and acceptance" basis Under this method the government agency asks sellers to submit bids at which they are willing to offer their crop for sale and the agency then accepts the bids up to the maximum quantity it wishes to buy or the maximum price it wishes to pay, beginning with the lowest bid and working upward This system has the advantage of removing "distress" lots from the market and leaving the rest of the crop in firmer hands It would also seem reasonable to infer that those who offer to sell at the lowest prices are most in need of a government outlet for their crops Farmers have been known to criticize this method, however, claiming that dealers say, "This is the price the government is paying," and then attempt to beat down the price on the rest of the crop to that level In some scattered instances this claim may be true Such dealers, however, are always looking for an excuse to pay low prices and if this one were not available, they would find another. When the government is actually removing some of the surplus crop from his local market, the farmer should be able to see through this excuse

The effect of relief purchases upon prices may be expected to vary considerably from one crop to another In the case of citrus fruits, celery, and other articles not ordinarily found in the diets of the lowest income groups, consumption is probably increased by relief purchase and distribution[3] In the case of dried prunes, potatoes, and other low-priced staple foods, the amount of increased consumption may be questioned Even in these crops, some results may be obtained in price by strategic timing and geographic location of purchases to relieve particularly glutted markets of distress merchandise One qualification must be introduced here, however In years of large crops and extremely low prices, some portion of the crop is usually left unharvested In general this burden falls heaviest upon the farms most distant from market as they must bear heavier freight rates as well as the harvesting charges Under such circumstances, *if we can assume that the relief clients would have bought some of the product had it not been given to them,* then purchases from these more distant areas distributed for relief in the cities will tend to depress the price received by nearby growers

Even though they may be very effective in raising prices of particular crops in individual years, the long-run effect of relief purchases may still be open to question The average farmer expects some bad-price years as well as good-price years in any crop The effect of a few low-price years in succession is to drive out marginal producers or to cause some acreage reduction so that the price of the crop tends to improve However, if farmers in general get the idea that the government stands ready to "bail them out" by relief purchases whenever a low-price year occurs, acreage may be steadily overexpanded Under these circumstances the government could not be blamed if it confined relief purchases to those crops, those regions, and those farmers who were willing to make some sacrifice to help themselves in the form of acreage reduction or marketing agreements

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[3] Except possibly where the demand for the product by those not on relief is highly elastic so that they are discouraged from buying a similar amount by the price rise which is achieved

Marketing Agreements

Marketing agreements are a somewhat less-known feature of the work of the Agricultural Adjustment Administration and offer some interesting possibilities The original A A A Act, and the parts of it reenacted in the Marketing Agreements Act of 1938, relieve farmers and handlers from the provisions of the Sherman Anti-Trust Act in making agreements conforming to the provisions of the Marketing Agreements Act and approved by the Secretary of Agriculture

One provision which marketing agreements may contain is limitation of shipments by grade and size regulations When there is an oversupply of a perishable crop, a considerable part of the crop will be left to spoil in the field, on track, and in terminal markets It is highly desirable, both from the point of view of the producer and the consumer, that this wastage be confined as far as possible to the lower grades of the product In years of large crops, for example, cull potatoes and even No 2's may not bring much more than freight charges in terminal markets, yet their presence in the market often tends to depress the prices of No 1 potatoes by much more than the simple effect of their addition to the total supply Unscrupulous dealers buy these low-grade potatoes at distress prices and then advertise a "sale" of potatoes at extremely low prices Consumers, unable or unwilling to go to the trouble of making grade comparisons, then expect other dealers selling first-grade potatoes to meet these prices Grade and size regulations, together with compulsory government inspection, offer a means of combating this evil

Another provision allowed under the Marketing Agreements

Act is the pro-ration of shipments that is, handlers are limited to the shipment of an agreed percentage of each farmer's crop Since it is somewhat difficult to enforce and expensive to administer, pro-ration is generally resorted to only when grade and size regulations appear insufficient to meet the surplus problem (for example, when all or nearly all of a crop is able to meet the highest grade requirements) Under grade and size regulations, an inspector's certificate is sufficient evidence that a car may be shipped Under pro-ration, it is necessary for someone to check each man's quota against past shipments to see whether the quota is being exceeded by the shipment in question

Whenever the demand for any crop is sufficiently inelastic, the withholding of part of the crop from market will increase total revenue When it is remembered that no shipping charges (and in some cases no harvesting charges) are incurred on the part of the crop that is not sent to market, we can see how the farmers' income can be augmented considerably by such restriction Grade and size regulations and pro-ration offer a means of equalizing both the burden and the profit of such withholding

Marketing agreements have one serious legal handicap They can apply to shipments in interstate commerce only Thus they tend to become only partially effective in the case of a crop of which a large percentage is marketed within the state where it is grown In such cases they would have to be implemented by individual state laws to the same effect in order to become 100 per cent effective Some states do have laws requiring the grade of the product to be stamped on all consumer packages In such states, consumer preference may be as effective in preventing the marketing of culls from within the state as grade and size regulations are in preventing culls from entering the state.

Reduction of Acreage

In a pamphlet entitled "America Must Choose,"[4] Secretary of Agriculture Wallace gives us the essence of the American farm problem In it he points out that if we are to follow the course of extreme nationalism as indicated by our previous tariff policy, we must be prepared to take from 40 to 100 million acres of farm land out of production—40 million if we take out good land, 100 million if we take out poor land This course would place all the sacrifice on the farmers On the other hand, Secretary Wallace points out that if we are to sell all our surplus farm produce abroad, we must be prepared to reduce our tariffs sufficiently to import one billion dollars worth more of goods than we did in 1929 This course would impose the entire burden of sacrifice on the manufacturers He proposes a "planned middle course" to retire approximately 25 million acres and to import 500 million dollars worth of goods more than in 1929

Many people may raise the question as to why farmers should be "paid for taking land out of production" when low prices will force them to do it anyway The answer to this is twofold (1) As we have seen above, voluntary acreage contraction in response to price is an extremely slow process, (2) such land will probably not be taken out of production until its fertility is destroyed If there is any hope that foreign trade in agricultural products will be restored, or if there is any prospect that expanding American population, or one with an expanding income, will be able to buy the products of our soil in the future, we should not risk this loss of the soil A difference should be noted here between the original Agricultural Adjustment Act of 1933 which provided payments for mere reduction of acreage, and the Soil Conservation and Domestic Allotment Act of 1936 which bases payments upon the remarketing quotas, upon a vote of two-thirds of the producers, whenever the Secretary of Agriculture deems them to be necessary

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[4] *World Affairs Pamphlets,* No 3, 1934, published by Foreign Policy Association, New York, and World Peace Foundation, Boston

One vital factor in the success or failure of the plan is the prices at which the loan rates are set The setting of too high a loan rate will result in a market price which prevents the absorption by the market of even a normal year's consumption requirements, and an excessive amount of the crop will go "into the loan " A loan rate which is even equal to the market price may well be too high, since the farmer is thus guaranteed at least the present market price and a chance to wait without risk for higher prices (The terms of the loan prevent the government from recovering from the farmer if the stored crop is eventually sold for less than the amount of the loan) The present cotton loan situation should not be blamed upon the Department of Agriculture Both the making of these loans and their amount (either as a direct amount or by a rigid formula) was made mandatory by Congress Also, present acreage provisions were not in effect in time to cover the 1937 cotton crop

In the case of wheat there is also a special crop-insurance program "Under this program the insurance is against losses in yield through unavoidable causes and provides either 50 per cent or 75 per cent coverage Both insurance premiums and insurance indemnities are computed in wheat rather than money, so that the insurance reserves provide in effect an additional storage granary to be filled in years of fair or high yields and drawn upon in years when yields are low "[5] To the extent that this insurance feature operates successfully, like all insurance it will tend both to eliminate risk and to eliminate profits Recent experience may have made the farmer more receptive to the idea of a small and steady income rather than a chance of large profits or large losses Whether he will continue in this frame of mind remains to be seen

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[5] *Agricultural Adjustment, 1937–38,* U S Dept of Agriculture, Agricultural Adjustment Administration

At best, however, many of the above methods of improving farm income are temporary expedients In the end our solution to the farm problem may be found to come by indirection As Professor Sprague has pointed out,[6] if we can make our economic system work as it should to provide full employment to people in the cities and to draw some of the population from the farms to the cities, the farm problem will disappear by itself

The "Back to the Farm" Movement

Some incurable romantics are advocating a complete decentralization of industry with plants located in rural small towns and the workers engaged in part-time farming If such a plan involved the synchronization of slack times in the factory with harvest times on the farms and the use of the workers as harvest hands instead of floating labor, there might be some sense to it The proposal, however, is for each worker to have his own small farm Such a plan, if followed extensively, would insure the impoverishment of thousands of specialized fruit and vegetable and chicken farmers if many more people raise these products for their own use, and so would still further decrease the demand for the products of the factories. It is a negation of all of the advantages we have found in specialization

It would, of course, be nice for the employer to feel that his workers had something to "fall back on" when the plant shut down Such a plan would also tend to increase the immobility of labor and so tend to decrease labor's bargaining power Rather than make the farmer the victim of this kind of "depression insurance," let us find a way of avoiding extreme business fluctuations and turn the clock forward instead of turning it back We have spent much money and effort in educating professional farmers to be good farmers There is no need to turn around and try to make jacks-of-all-trades out of good factory hands

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[6] *American Economic Review,* Vol XXVIII, No 1, March 1938

CHAPTER XV

Normal Price Under Monopoly and Monopolistic Competition[1]

IN CHAPTER XIII we assumed, as the criterion of pure competition, that the demand curve for the product of an individual firm was perfectly elastic, that is, the individual seller could take the market price for granted without fear that expansions in his own individual output alone would cause the price at which he could sell that output to fall

Another concept of pure competition is the sale of a standardized product by a large number of small firms

In modern economic society, however, the industries in which such a situation exists or is even closely approximated are fairly few, being confined mostly to the terminal markets for agricultural products and raw materials Two simple tests, while not infallible, will help the reader to determine whether the market for an industry is purely competitive or not In the first place, the prevalence of advertising by individual firms is presumptive evidence of monopolistic competition in the market for a product If the market were purely competitive, any firm could sell all that it wished at the existing market price and could take business away from any and all competitors by the slightest drop in its price, so there would be no need to advertise The second test is the units of value in which prices are quoted Thus, in the grain markets, price changes are quoted in eighths of a cent a bushel, and in cotton and some other commodities quotations are in 100ths of a cent a pound The natural inference is that buyers are responsive to these small differences in price and that one dealer can take business away from another by varying his price by these small fractions In less purely competitive markets the different prices charged by different sellers will vary by much wider amounts Thus, in the prices charged by different retail stores in a city, the differences may amount to several cents on low-priced articles and to several dollars on high-priced articles The use of a trade-mark or brand name is also usually an evidence of less than pure competition If the reader will try to apply these tests to the markets for various products with which he is familiar, he will see how few of them are purely competitive

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[1] The presentation here is also an adaptation of that in Chamberlin, Edward, *The Theory of Monopolistic Competition,* Harvard University Press, 1935

Equilibrium Output of Monopoly[2]

We must now analyze the conditions of long-run supply price and output under product differentiation The chief cause of difference from purely competitive conditions lies in the fact that the demand curve for the product of an individual firm will be less than infinitely elastic This means that marginal revenue and average revenue (price) will no longer be identical The individual firm will thus have to take into account not only the changes in cost which will be associated with different outputs, but also the changes in price which it will be able to obtain from buyers for various amounts of output The situation is illustrated in Diagram 1

In Diagram 1, *ATUC* represents average total unit costs on a planning curve as explained in Chapter XIII *MC* is the marginal cost curve which is marginal to *ATUC* *AR* is the average revenue or demand curve for the product of a particular individual firm, showing the prices at which various amounts of output can be sold *MR* is the marginal revenue curve showing the net addition to total revenue occasioned by selling each additional amount of output at the price or average revenue indicated by the corresponding point on *AR* Point *S* is the point at which marginal revenue and marginal cost are equal (in this case, at the output *OQ*) At this output the average revenue (price) is indicated by *PQ*, and the average cost by *DQ* Monopoly profits are shown by the area of the rectangle *FPDE* Total revenue at this output

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[2] The monopoly solution is the best applicable to the individual firm under monopolistic competition also when the demand curve can be taken for granted This solution must be modified with competitive elements when firms are selling differentiated products which happen to be close substitutes

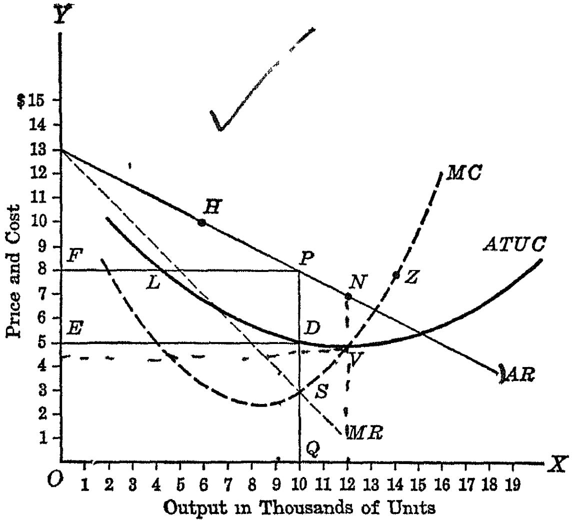

Diagram 1 —Adjustment of Monopolistic Output and Price Under Decreasing Cost

is shown by the area *FPQO*, and total costs by the area *EDQO*

The area of the rectangle *FPDE* representing monopoly profits is the largest possible one which can be drawn on the diagram under these conditions of cost and of demand. Numerically, as can be seen from the scale, *FPDE* is $30,000 00 Price is $8 00, and cost per unit is $5 00, leaving a profit per unit of $3 00 on 10,000 units

But point *D* is still on a falling part of our cost curve Suppose we try to increase profits by moving on to point *V*, the point of minimum average cost At this point average cost is only $4 80, but this amount can be sold only at the price represented by point *N* on the average revenue curve, that is, at $7 00, leaving a profit per unit of $2 20 on an output of 12,000 units Total net profit is only $26,400 00

Suppose that, instead of trying to produce so much, we produce a smaller output which we can sell at a higher price Let us put the price at $10 00 At this price, as indicated by point *H* on the average revenue curve, 6,000 units can be sold Our cost per unit at this output, shown by point *L* on the average cost curve, is $6 60, leaving a net profit per unit of $3 40, which is a larger profit per unit than we had at the output *OQ* However, since only 6,000 units can be sold, *total* net profit is only $20,400 00.

If marginal cost and marginal revenue are known, it is not necessary to draw different rectangles of total net profits to see which is the largest It follows from the definitions of marginal cost and marginal revenue that the point at which they are equal will be the point of maximum net profits Short of this point, any expansion of output will add more to total revenue than it adds to total cost, therefore, total net profits must be increasing as output expands up to the point at which marginal revenue and marginal cost are equal Beyond this point, further expansion of output would continually be adding more to total cost than to total revenue, so that total net profits would be decreasing

Some differences should here be noted between this monopoly firm and a purely competitive firm which might happen to have the same size and type of cost curve For a firm in pure competition, the individual demand curve *AR* for its product will be a horizontal straight line, and *MR* will coincide with it. Thus, at a price of $8.00, *AR* and *MR* would lie along *FP* and extend to point *Z,* which would be the best output for this firm if it could depend on the price remaining at $8.00 as it expanded output. However, in the absence of monopoly conditions, the profits to be made at this point will draw other firms into the industry until competition forces the price down to the point where the horizontal individual demand curve (*AR* and *MR*) is tangent to *ATUC* at the point *V,* that is, at the point where price is just equal to minimum average cost of each competitive firm.

Although we said in Chapter XIII that there is no equilibrium for purely competitive firms when the individual firm

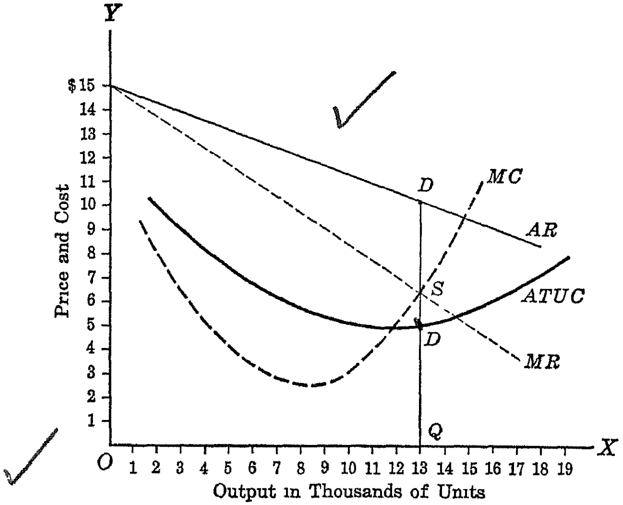

Diagram 2—Monopolistic Output and Price Under Increasing Cost

is still operating under conditions of decreasing cost, point *P* is a point of *monopoly* equilibrium as long as the revenue curves and the cost curves remain the same as they are in the diagram.

Diagram 2 illustrates monopoly output under conditions of increasing cost for the firm The cost curves are the same as in Diagram 1, but in this case demand is sufficient to cause the monopolist to produce beyond the point of minimum average cost Here again, the output which yields maximum net returns is the one at which marginal revenue and marginal cost are equal, as indicated by point *S* Although average cost would be lowered and price would be increased by contracting output to 12,000 units, the loss in revenue from not selling the last 1,000 units would more than offset these gains, and total net returns would be less than at the output of 13,000 units

Practical Adjustment of Output by a Monopolist

The reader might here object that our analysis is a little too finespun to suit the conditions of the actual world, since the average monopolist is not likely to know the demand curve for his product throughout its length, nor is he apt to be able to draw up a planning curve such as ours and to estimate accurately *in advance* before any plant is built at all what his costs would be in operating plants of each possible size It is true that probably no monopolist starts in business producing exactly at the point of maximum net returns

However, when we analyze carefully the actual process which the monopolist goes through, much of the force of this objection is lost The monopolist who is just starting up in a business is apt to start with a smaller plant than the one that will eventually be found to be the best in size This may be due in part to the difficulty in raising borrowed capital It is also better to err on the side of underestimation, since it is easier to add to a plant which is found to be too small than it is to contract without loss a plant which is too large Once a plant of a certain size is in existence, any monopolist with a good system of cost accounting should be able to estimate fairly closely what the marginal cost would be in expanding his output by adding one or two machines or a few thousand square feet of floor space Once he is in business, he will discover one point on the demand curve, that is the price at which he can sell his present output After he has produced and sold this output for a while, he should be in a position to make at least a shrewd guess as to the price at which he could sell the slightly larger output that could be made with a small addition to the existing plant Thus, by a series of small adjustments through a process of trial and error, he would find what he considers to be the point of maximum net returns The longer the conditions of cost and of demand remain the same, the closer will the monopolist tend to approximate the true point of maximum net returns There is always the possibility, however, that through ignorance the monopolist will discontinue these experiments and stop short of the point of maximum net returns, being satisfied so long as he is operating at a profit Under these circumstances, *both the monopolist and the general public would be the losers* the monopolist, because he would be making less than the greatest possible profit, and the public, because it would obtain fewer goods at higher prices than it could, had the monopolist been awake to his own self-interest On the other hand, if his price is set low through ignorance, the public gains at the expense of the monopolist

In this dynamic world of ours, however, there is the additional difficulty of forecasting changes in demand and changes in cost conditions. Not even subsequent experience will prove which were the better businessmen, the Interstate Commerce Commission which ordered railroad passenger fares cut to 2c a mile, or the managers of the railroads who opposed the cut Other conditions may change so as to render the results of the experiment inconclusive This reiterates our contention in Chapter VIII that the important factor in pricing policy is the seller's idea of what the demand curve is. The true demand when discovered by experience is merely a guide to better estimation in the future

Perfect Monopolies

So far in this chapter our analysis applies to what might be termed "perfect" monopolies, that is, the control by a single firm of a product for which there are no close substitutes The necessary condition for such a perfect monopoly is the ability to prevent competing firms (offering close substitutes) from entering the industry This might be made possible by the ownership of all sources of raw material by a single firm, by the control of basic and indispensable patents either on the product itself or on the process of manufacture, by a monopoly charter granted by a government, or by other means The degree of approximation to perfection of the monopoly will then depend upon the absence or existence of other products which are capable of satisfying the same want Thus the control of the water system of a large city is practically a perfect monopoly On the other hand, a monopoly of aluminum faces close competition from other metals in many uses, although in those uses in which aluminum is either indispensable or infinitely superior to other metals the monopoly approaches perfection The only influences which might alter the demand curve facing a perfect monopoly would be those of changes in tastes and incomes of the population It follows from the definition of perfection that no competing firms may be able to affect the demand curve of the monopoly If we are considering competition for the consumers' dollar, there are *no* perfect monopolies

Duopoly and Oligopoly

Logically the next classification to that of perfect monopoly is that of *pure duopoly* a situation in which there are only two sellers, each selling a product identical with that of his competitor (no product differentiation) and with no agreement, either tacit or expressed, between the two sellers as to price or amount of output. Unable to find an example of such a situation in the actual world, Cournot, one of the first economists to treat this problem, invented the imaginary example of two people each with a mineral spring located within a few feet of the other, the two selling the same mineral water in competition with each other and without a price agreement. Under these circumstances, either seller, by cutting his price below that of the other, could take away all of his competitor's business, provided the second seller did not also lower his price.

An extension of the problem of pure duopoly is that of *pure oligopoly* a situation in which there are a few sellers, selling a completely standardized product, each of them producing a large enough proportion of the total output so that changes in the price or output of any single seller will have an appreciable effect upon the prices that can be obtained and the outputs that can be sold by the competitors.

Many solutions of the problems of pure oligopoly have been attempted by economists, particularly by the mathematical economists. However, since the solutions are so dependent upon the assumptions that are made, and since so many different assumptions are possible, we will not burden the beginning student with a consideration of them here.[3]

Elements of Product Differentiation

We must now examine the situation under product differentiation. This has been called a form of "monopolistic competition," a situation where there may be many sellers, but with differentiated products so that competition is no longer on a purely price basis. By combining services with a product, the different sellers have succeeded in differentiating the product in the minds of buyers and so have within limits a monopoly in selling their product, although the products of all sellers are fairly close substitutes for one another and would all fall within our second definition of a commodity as previously defined Under these conditions the determination of equilibrium output for the individual firm, and the point of maximum net returns, would be exactly the same as in the above analysis, *so long as the demand curve for the product of the individual seller remained unchanged* However, we must now face the fact that the entrance into the industry of new firms producing close substitutes may shift the demand curves for the products of the dealers already in the industry.

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[3] The student who is interested in the problem might consult Chamberlin, Edward, *The Theory of Monopolistic Competition,* Ch III, Harvard University Press, 1935.

Successful product differentiation may act as a deterrent to the entry of new firms into an industry insofar as they may be afraid that they will be unable to take business away from the other firms, or that they will have to incur heavy advertising costs in order to do so It is not, however, as absolute a bar to the entry of new firms as is the control of raw materials or basic patents. If some of the existing firms in the industry are making large enough profits so that the prospect of making similar profits is enough to offset the risks and expense of entering the industry, new firms will enter

New firms which enter such an industry will naturally first attempt to attract to themselves those customers who can be most easily enticed away from the other dealers Depending upon the circumstances of the case, this may involve either the closest possible duplication of the services offered by an older dealer or the offering of different services which might be calculated to be of superior attraction to a certain part of the older dealer's clientele Take, for instance, the matter of location of a store If the present dealer's store is most conveniently located for the vast majority of his customers, a new competing store will do well to locate as close to the old store as possible On the other hand, if the old store is conveniently located for some buyers but inconvenient to a large number of others, the new store might do well to locate in a place which would be more convenient to the latter group The same principle applies to all other types of services Competition with an existing restaurant might be made most effective under some circumstances by opening another restaurant of the same type, under other circumstances by opening a cafeteria If the present restaurant has beautiful waitresses and this appeals to all customers, the new restaurant might do well to hire a "Follies" chorus to wait on the tables, but if a considerable part of the present restaurant's trade is made up of married men accompanied by jealous wives, the new one might attract more trade by hiring homely women This is enough by way of illustration The important point to notice is that the new competitors will have the power to take away a part of the demand for the product of the older firm and so cause the older firm's demand curve to shift to the left

Diagram 3 on page 266 shows some of the possibilities of this situation In Figure 1 we have the revenue and cost curves of the individual firm before a competitor enters the field These curves are drawn on the same principles as in the earlier diagram (*ATUC* is average total unit cost, *MC* is marginal cost, *AR* is average revenue, and *MR* is marginal revenue, point *S* shows the point at which marginal revenue and marginal cost are equal, giving the output *OQ* at which net returns are at a maximum, *PQ* is the price at which the output *OQ* can be sold, *DQ* is the average cost of this output, and *FPDE* is the monopoly profit)

Results of Monopolistic Competition

Figure 2 shows the situation after a new competitor has entered the field duplicating the old firm's services as far as possible If the personality of the dealer or his salespeople is one of the factors which induce buyers to trade with him, perfect duplication is of course impossible, so there will be some few buyers at least who will prefer the old dealer if he sells at the same price as the new one, and some buyers will even be willing to pay a slightly higher price to the old dealer What can be closely duplicated are the business methods of the old dealer and many of the services which he renders (credit, delivery service, location of store, packaging, and so on) Now insofar as these methods and services were the sole factors which attracted certain customers to the old dealer, and to the extent that these factors are exactly duplicated by the new firm, this group of customers will have no preference between dealers and will trade with whichever dealer offers the lower price Another group of buyers may still prefer the old dealer to the new, but they will no longer be willing to pay the same price difference for the privilege of trading with him that they did before the new competitor started business This might well be the situation where there was at first only one grocer in a village and the choice lay between trading with him and driving into the city to buy He could then charge much higher prices than the city stores and still find customers A new grocery then starts up in the same village The choice is now between two stores of comparatively equal convenience of location Even though people prefer the old grocer to the new, they will not be willing to pay the same price differences to trade with him as before when the only alternative was to go to the city

The net result of all this is to shift the old firm's demand curve to the left and to make it more elastic We see in Figure 2 that if the old dealer should try to charge the same price as he formerly did (shown by point *H*), he could sell so little that his costs would be much higher than his selling price On the other hand, if he tried to sell his old output (shown by *OA* in Figure 2), he could do so only at the price *GA*, which yields him no profit At his best output, as shown by *OQ* in Figure 2, his costs are now higher, his selling price is lower, and his profits are much less than before the new competitor entered the field

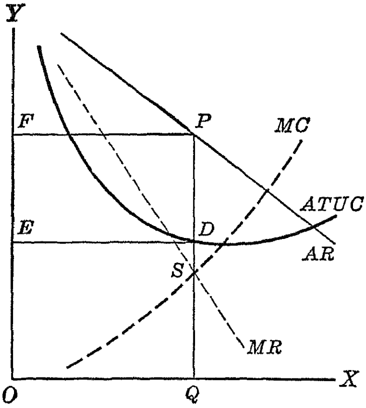

Fig 1 —Individual Firm s Demand and Cost Curves

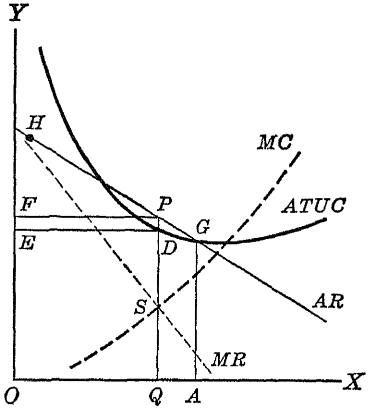

Fig 2 —Same Firm After a Competitor Has Duplicated Its Services (Duopoly with Slight Product Differentiation)

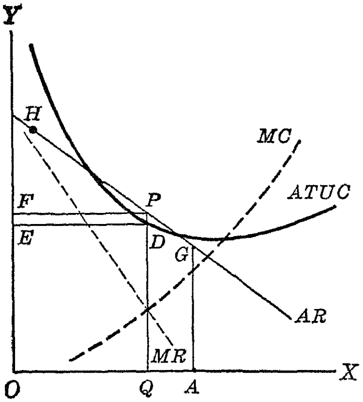

Fig 3 —Same Firm After a Competitor Has Offered Services Considered Better by a Part of the Old Firm s Customers (Duopoly with Important Product Differentiation)

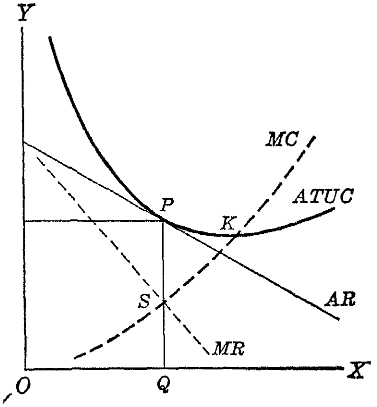

Fig 4 —Possible Final Result of Monopolistic Competition

Diagram 3.—Some Results of Monopolistic Competition

We now turn to another possible situation in which the new competitor, instead of duplicating the services of the old firm, attempts to take away a part of the old firm's customers by offering very superior services to a part of them. This might be the situation where there has been one store serving two small villages, convenient to the people in its own village and inconvenient to those in the other (but more convenient to the people in the second village than trading in the city). The new store then locates in the second village, where it is more convenient to the people there but not so convenient as the old store to the people in the village where the older store is located. Figure 3 shows the effect on the demand for the products and services of the old firm. The demand curve has both shifted to the left and become more elastic than in Figure 1, but it is less elastic than in Figure 2 (where perfect duplication of the service was attempted). If the old firm now tried to sell the same output (shown by *OA* in Figure 3), it would have to drop its price low enough to attract customers from the second village where they are being better served by the new store. Such a price is shown by *GA* and is extremely unprofitable. On the other hand, if the old firm attempts to charge the same price as it did before (point *H*, Figure 3), it will not lose many customers from its own village even though the new store in the other village charges a slightly lower price. It will, however, lose customers to the store in the other village more readily than it formerly lost its customers to the city by raising its prices. (Hence the elasticity in Figure 3 is greater than in Figure 1.)

Under quite possibly conceivable circumstances, competition by a new firm that is directed toward only a part of the old firm's customers may cause the old firm to charge a higher price to its remaining trade than it did before the new competitor entered the field. This will be the case when the old firm's original trade consists of two classes of customers, the demand of one class being very inelastic, and that of the other being very elastic. If a competitor then enters and, by offering low prices and different service, takes away the customers whose demand is elastic, the price at the point of maximum net returns which the old firm will charge the remaining customers (whose demand is inelastic) will be higher than it was before. For instance, an independent grocery might be serving two classes of people: a wealthy group who will buy what they want without much attention to price but who insist on charge accounts and delivery service and on being able to order by telephone, plus a poorer group who have no telephones and who, although they may appreciate the charge and delivery service, are primarily influenced by price in the amount they buy, and hence would carry their groceries and pay cash if they could get them cheaper. In order to get a volume of business by selling to the latter group the grocer must keep his prices low, thus his point of maximum net return is at a fairly low price. A chain store starts up (doing a cash-and-carry business and selling at a very low price) and takes away the poorer customers. The independent grocer then finds that it would not pay to drop his prices low enough to compete with the chain store for the business of the poor group. However, he also finds that his remaining customers are so insistent on having telephone, charge, and delivery service that they will not leave him or curtail their purchases even if he raises his prices somewhat, so he specializes in being an "exclusive" store. But even at the high prices, his total net profit will not be so great as it was before the chain store started competing with him. Otherwise he would have set his price higher in the first place and would not have tried to appeal to the lower-income group. The business of the lower-income group was well worth having when there was no competition for it, but it would not pay to drop prices to try to get it back.

There is, of course, no reason why the new competition which enters the field should be confined to either of the two types we have been discussing. It may (and does) happen in the actual business world that first one firm will compete by duplicating the services offered by an existing firm, and then a third firm takes business away from both of the first two by offering superior service to a certain class of buyers. Or it may happen that the first competitor starts by offering superior service to a certain group, and if each firm is still making a profit by catering to a group of customers, two or more new competitors will try to compete by duplication of services within each group. In the illustration we gave above, if both the chain store and the independent store were making profits, a new chain store might start to compete for the cash-and-carry business, and a new independent store to compete for the telephone-charge-and-delivery business.

If the existence of any profit whatever is sufficient to attract new competitors into an industry, the final result of monopolistic competition is shown by Figure 4. Here we find that *PQ* represents both the average revenue and the average cost of the output *OQ,* in other words, selling price is just equal to average cost, and the area representing monopoly profits has disappeared. While there are no monopoly profits at point *P, OQ* still represents the best possible output for the firm under these conditions, since any other output could be produced only at a loss. (It should be remembered that interest and wages of management have been included in costs.) If monopolistic competition is carried to its logical conclusion, Figure 4 will be typical of each firm that remains in the industry. It is not necessary that each firm sell at the same price nor that each have identical cost curves. What will happen will be that each firm's average revenue curve will be tangent to its own average cost curve at only one point. If average revenue were less than average cost at every output, the firm could not operate except at a loss and would eventually be forced out of the industry If average revenue is above average costs at any output, the net monopoly profit resulting would attract competition if a new firm could duplicate the old firm's facilities at the same or lower cost Even if a new firm encounters higher costs, these would not be a positive bar to its entry provided that it estimates that total revenue would be equal to or above total cost at some possible output

While we have devoted most of our attention to the effects of monopolistic competition upon the demand curve of the individual firm, it should not be ignored that such competition may also have its effect on the cost curve In Figures 2, 3, and 4 of Diagram 3, the higher average cost of the decreased output is occasioned only by the inroads of competitors on the business of the firm If the existing firm has been paying the factors of production the full value of their services, this is the only change in costs that will take place However, if the old firm has been making a profit by exploiting the factors (paying them less than their value to the firm), a new competitor may raise the entire cost curve of the old firm by forcing it to pay the full value of the factors Thus, if customers are attracted to a store, not by the personality of the owner but by the personality of his hired salespeople, a new competitor may force the owner to pay the salespeople their full value by attempting to hire them away from him, or individual salesmen may start in the business for themselves if the employer is not paying them what they are worth Similarly, if the owner of the business has been paying less than the full rental value for the location which he occupies, as soon as his lease expires competition will force him to pay the full value If we are trying to represent a true long-run equilibrium situation, we must draw our cost curves on the assumption that the factors are paid their full value This is the assumption which underlies the figures in Diagram

3, we must not ignore the fact that it has been made

In actual practice, the final solution shown in Figure 4 of Diagram 3 is most closely approximated in certain retail trades where the first cost of setting up a new firm is small For example, the comparative ease with which a barber can start in business for himself is sufficient to prevent the average master barber from earning any more than he could as a hired journeyman if all his costs are properly figured The same is true of a great many small manufacturing and retail trades, such as the grocery business, shoe repairing, garage business, and so forth The fact that certain men of superior managerial or technical ability are making large earnings in these trades should not deceive the reader into believing that they are making large profits Most of what is commonly called a "profit" in these cases is really a wage of management, it is the comparative scarcity of these men of superior ability which enables them to make such earnings

Even after all costs have been properly figured, there will be found some people who are receiving a true net monopoly profit in these trades However, a careful examination will always disclose that this is only a temporary situation. The firms which are first to enter a new industry, the firms which first enter a new location, and the firms which first adopt a new way of appealing to buyers in general or to a particular class of buyers, usually have an opportunity to make a profit before competition catches up with them This will be more fully discussed in Chapter XXV, Profits It is sufficient for us to note here that such profits are purely temporary whenever a new firm can duplicate the services of an old firm at anywhere near the same cost

Different Results of Pure and Monopolistic Competition

Certain differences between monopolistic competition and pure competition in their ultimate results should now be observed Let us refer to Figure 4 in Diagram 3 Under pure competition, if new firms which enter the industry have the same costs as the old firms, long-run competitive price would be at point *K*, the point of minimum average costs for each firm, and each firm would be operating at its lowest cost output On the other hand, under product differentiation the existence of less than infinitely elastic demand curves for the products of the individual firm forces each firm to operate at less than its competitive optimum output and at higher costs

For instance, it has been estimated that if the average gasoline station could double its sales, it could afford to cut the price 2c a gallon, still making the same return as it does at present However, under monopolistic competition as it exists in the industry no dealer can permanently double his sales by a 2c cut If a single dealer does drop his price by 2c, some of his competitors who are more conveniently located to their own customers might be able to retain most of their own business by only cutting their price 1c, if they cut 2c, they would retain all of their business Thus, while "price wars" occasionally do occur in the retail gasoline business, we find them "deprecated by the industry as a benefit to nobody" Consequently there are too many gas stations, none of them operating at a profit and all of them operating at less than capacity, and the public pays a much higher price than it would have to pay if it had no preference as between dealers, thus allowing pure competition to prevail and service to be given by fewer stations operating at capacity and selling at minimum average cost The public is of course better served by a wide distribution of gas stations The ability to buy within a short distance of wherever one runs out of gasoline is a privilege perhaps worth paying for. But certainly we are not much better served by having four stations at one crossroads or six to eight in one block The fact that most of us are unable to test gasoline and are therefore forced to buy by brand instead of on a strict price and quality basis also helps to complicate the situation As Professor Chamberlin has so well demonstrated, many of the so-called "wastes of competition" are really wastes not of pure competition but of monopolistic competition

CHAPTER XVI

Selling Costs[1]

IN THE previous chapters we have largely ignored the question of selling costs and have concentrated our attention upon costs of production As long as we were concerned with the analysis of pure competition, this was sufficient, because when competition is pure there are no selling costs There may be costs of transportation and handling, but if competition is pure, it will be a matter of indifference whether these are paid by the seller and included in the delivered price or whether they are paid by the buyer and the price is quoted f o b In one sense, these may be regarded as increasing costs of production, as an increasing output must travel a greater distance to find its market Insofar as there are differences in these costs due to the location of different firms, such differences will tend to be offset by differences in rent and will be discussed in Chapter XXIV[2]

Selling costs may be defined as the costs necessary to *persuade* a buyer to buy one product rather than another, or to buy from one seller rather than another If all buyers knew exactly what they wanted and could not be changed in their estimations of the satisfactions derived from different commodities—if they were able to detect all differences in quality

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[1] *Cf* Chamberlin, Edward, 'Selling Costs and the Theory of Value' (Ch VIII), *The Theory of Monopolistic Competition,* Harvard University Press, 1935

[2] See, however, a divergent view expressed by John Ise, 'The Monopoly Element in Rent,' *American Economic Review,* February, 1940, pp 33 ff

—such selling costs would never be incurred by any dealer "Salesmanship," whether in direct selling or by means of advertising, consists of the art of persuasion Sales managers are fond of using the term "order taker" as a term of reproach for their less aggressive salesmen In other words, all these men do is take orders for what the buyers want The true salesman in the language of all of the craft is the man who "makes the customers want what the firm has to sell" If competition were pure and perfect, there would be no need for "salesmen" or sales managers, and one or at most a very few "order takers" could handle all the orders for an extremely large firm

On the other hand, whenever the buyer's knowledge is less than perfect, whenever he lacks objective standards by which to judge the quality of goods, whenever his choice between dealers may be influenced by considerations other than price and quality, and whenever he is undecided and open to persuasion as to which product he will buy or from which dealer to buy, then selling cost may be necessary to sell any output at all and will most certainly be encountered as the attempt is made to expand output Even where no active "persuasion" is intended, some selling effort will be necessary to acquaint the buyer with the mere fact of the existence of a new product In this modern world where so many dealers are clamoring for the buyer's attention, it may be necessary to exert some selling effort merely to remind him of the fact that an old product is still in existence If buyers cannot or do not keep themselves acquainted with the prices which are being charged by all sellers, it may be necessary even to advertise a price cut in order to secure increased business from cutting price

The previous paragraph dealt with types of selling costs which are associated with an *imperfect market* Presumably, in the long run if no new products, or new advertisements, or new kinds of sales efforts were introduced, or, more briefly, if we could assume *perfect* knowledge on the part of the buyers, these sales efforts would lose their force and would disappear

More important, however, are certain types of product differentiation which would persist even with perfect knowledge of the market A differentiated product which is actually superior in a technological sense may require selling costs in order to acquaint the public with it simply because it is differentiated, and not standardized so that lower prices may induce greater volume Sometimes advertising may create product differentiation Sometimes, on the other hand, product differentiation may create the need for selling costs

Influence of Selling Costs on Demand Curve

In terms of our previous analysis, the purpose of all advertising and selling efforts is to influence the demand curve for the product of an individual seller or a group of sellers The aim of any dealer who incurs selling costs is to sell a greater output at any given price than he could have sold without incurring these costs Any successful selling effort will shift some part of the demand curve for the firm's product to a location lying to the right of where it would have been without such effort This is the result either of inducing the same buyers to take more of a product at any given price or of inducing additional buyers to take the product at prices they would not have paid before the sales effort was made

Depending upon circumstances, the new demand curve that is the result of advertising and selling effort may be more or less elastic, or parts of it may be more or less elastic, than the old demand curve that existed before the selling effort was made In general, if the effect of the effort is to convince buyers (rightly or wrongly) that the product sold by a particular firm is much superior to its close substitutes, the tendency will be for the upper segments of the new demand curve to be less elastic than the old, that is, the firm will not lose proportionately so much business to its rivals by raising its price as it would have under the previous conditions of demand On the other hand, if there is a large group of people who feel that they cannot afford to buy the product at all except at low prices, but who become convinced of the superiority of this firm's product, the elasticity of the lower part of the new demand curve may be greater than that of the old The buying habits of additional buyers who are attracted by a given sales effort will also influence the elasticity of the new demand curve If they are people who will vary the amount of a product they purchase in response to a change in price, the new demand curve will tend to be more elastic than the old If they are not very responsive to price changes in the amount they purchase, the new demand curve will tend to be less elastic than the old one

Influence of Selling Costs on Determination of Output

The individual firm under monopolistic competition has a choice of means by which to sell a larger output It may lower its price, it may improve the quality of its product, it may increase its selling efforts, or it may do all three We shall not deal here with changes in quality but solely with selling costs In the preceding chapter we were concerned primarily with changes in output occasioned by changes in price, and we found the principles governing the point of maximum net returns for the firm When we have to consider selling costs as well, the problem becomes much more complicated Even if we knew the amount of selling costs which would be required to sell each possible output at each possible price, we could not represent them by a single curve on a two-dimensional diagram as we did with costs of production This is because selling cost is one of three interdependent variables output, price, and selling cost At any one price, a higher total selling cost will be required to sell a larger output at the same price At any one output, a higher total selling cost will be required to sell the same output at a higher price.

The formula that confronts the firm that is trying to determine the most profitable output is as follows

(Price) × *(Output)* — *(Production Cost* + *Selling Cost)* = *Net Returns*

We will assume that we know the total cost of production of each possible output Output may be increased by lowering the price (thus reaching another point on the same demand curve), or it may be increased by increasing selling costs (thus creating a new demand curve), or by a combination of cutting price and increasing selling costs (creating a new demand curve and selecting a new price point on the new demand curve) The problem is Which of these alternatives will make net returns the largest possible amount?

One way of solving this problem is to regard the selling costs which will create a certain demand curve as a fixed cost to be associated with that particular demand curve It will then be necessary to draw up a separate diagram for each possible selling cost and the demand curve it creates

In Diagram 1, *PC* represents average cost of production for each output *ATUC* is average total unit cost, *including sell-*

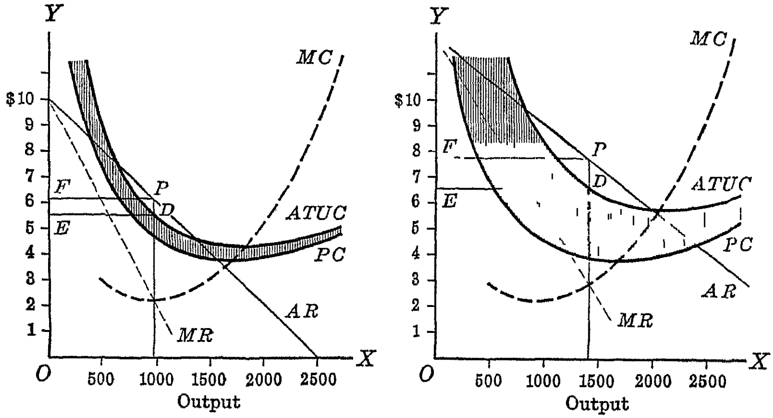

Fig 1 —Selling Cost $1,000 to Create New Demand

Fig 2 —Selling Cost $4,000 to Create New Demand

Diagram 1 —Fixed Selling Costs

ing cost Selling cost per unit of product at each output is shown by the vertical height of the shaded area, a unit cost which becomes smaller as output is increased, because of the spreading of this fixed cost *MC* is marginal cost, *AR* is average revenue or demand, and *MR* is marginal revenue The area *FPDE* indicates maximum net returns under each set of demand and cost conditions

It should be noted that while the profits shown by Figure 2 are greater than those in Figure 1, they are not necessarily the greatest profits that could possibly be achieved It might be that greater profits could be made with a selling expenditure either greater or less than $4,000 00 The only way in which we could find the point of greatest profits would be to draw every diagram for every different selling cost

It will be seen in Figure 2 that, although profits are greater than in Figure 1, selling costs are greater than profits and nearly as great as costs of production This is by no means an unusual situation in the actual business world of today Many products whose sole value, or the greater part of whose value, is the illusion created in the minds of the public by advertising would show a similar set of cost conditions For instance, it

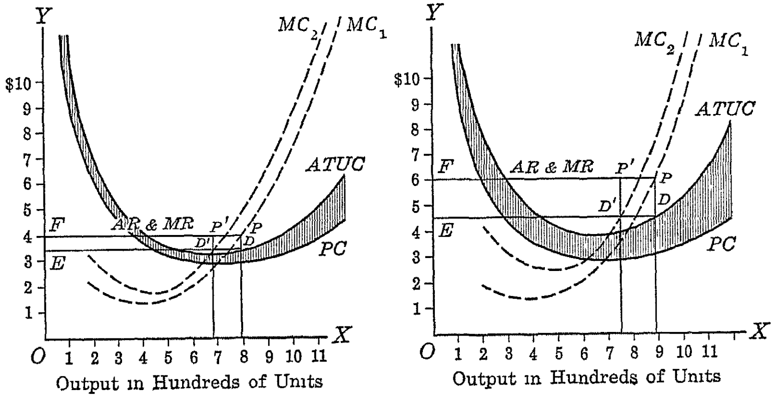

Diagram 2—Variable Selling Cost

is very doubtful if the ingredients and the preparation of most patent medicines cost as much per bottle as it does to advertise and sell them

Another way to attempt to solve the problem of the most profitable combination of price and selling cost is to consider the price as being fixed and the selling cost as a variable cost necessary to sell an increasing output at the same price

In Diagram 2, the symbols are the same as in Diagram 1, except that, since price is to be held constant, average revenue and marginal revenue coincide and become a horizontal straight line *AR* no longer represents a demand curve, as in the earlier diagrams, it now is made up of a number of points on *different* demand curves, each new demand curve being created by the selling costs necessary to sell more goods, also MC_2 includes variable selling costs while MC_1 does not

Here again we cannot be certain that Figure 2 shows the point of greatest profits If at a higher price the selling costs would not increase very much more, such a price might yield more profits. On the other hand, it might be that at a price of $3 50 selling costs would be so low for a very large output that this would yield the greatest profits, or the best price may be somewhere between $4 00 and $6 00 We cannot tell until we draw a diagram for each possible price

These diagrams illustrate how increasing selling costs can turn decreasing costs of production into increasing average total costs long before the point of minimum cost of production is reached

The reader should not become too enthusiastic about this type of analysis but should remember that three very important assumptions are involved

1 That we know the costs of production to be associated with each output in which we are interested

2 That we must know or be able to estimate closely the

nature of the demand curve to be associated with changes in price with selling costs unchanged

3 That we must be able to estimate the results to be achieved with each kind and amount of expenditure on selling costs

A reasonably accurate guess may often be made in connection with assumptions 1 and 2, but assumption 3 requires a higher order of prophecy, as will be found from the following discussion

Peculiarities of Selling Costs

While costs of production present many difficulties of calculation, intelligent effort will usually yield a result that is within a reasonable range of probable error, and experience will usually help to lessen such range of error Not so with selling costs, since here the effort is to appeal to the mind of the buyer A given sum spent in one way may yield results out of all proportion to the cost, spent in another way, it may bring no sales at all or even do harm to the business The field of selling and advertising costs is a splendid example of the old adage that "all generalities are wrong including this one"

One reason for this lies in the fact that the success of many advertising or selling schemes consists in the appeal of uniqueness or novelty The first chain stores to paint their fronts red attracted a considerable volume of trade by it, but now that so many have done so, an agreeable shade of some other color is not only a relief to the eye but is also a superior means of identification

On the other hand, many trade practices that start out by giving a unique advantage to the first firms which employ them end by being necessary practices that all competing firms must adopt if they hope to remain in business The first gas stations to buy an air compressor and put up a sign announcing "free air" reaped a harvest in the good old days when motorists took their exercise pushing a hand pump Today the possession of such a compressor confers no peculiar advantage to any station, yet every one must have one for fear of losing business if it did not The same is rapidly becoming true of the practice of gas station attendants of washing the customer's windshield when he stops for gas The economics of such "free services" should be clearly understood When only a few firms are giving them, so that they attract a large volume of business to a particular firm, the firm can very well afford to give them without advancing the regular price of the product But when all firms are giving them, they tend to become one of the common costs of doing business and may be passed on to the consumer in the price of the product This is one of the ways in which monopolistic competition through added "free" services may tend to raise rather than lower the price of the product

If all customers appreciate these services sufficiently to pay what they cost, the solution may be satisfactory to everyone However, since the services are usually not charged for separately but are simply included in the price of the product, many people who do not care for the services at all, or who do not care for them enough to pay what they cost, may be paying for them in all ignorance of the fact that they are doing so Thus, anyone who goes into a charge-and-deliver store and buys for cash and carries his own parcel home is helping to pay for the charge-and-delivery service available to other customers, even though he makes no use of it himself When there is a sufficient number of customers who do not care about such services, a new competitor may make a successful bid for their trade by not giving the services and not charging for them When this happens, the unit cost of the old firm will go up to the extent that all the remaining customers insist on receiving the services, but the cost of giving the service can no longer be "averaged out" over so large a number of customers as before

One difficulty that confronts us in the analysis of selling costs is the extreme disproportionality between advertising costs and volume of sales Not only is it impossible to predict with any fair degree of accuracy what volume of sales will result from any particular sum spent on advertising, but it is also often impossible to determine the extent to which any particular increase in sales has been due to any particular advertising expenditure which has been made in the past[3]

Another difficulty is that the selling costs that any one firm will encounter may be influenced by the actions of its competitors If the possible market for any one firm is largely confined to taking business away from its competitors within the same industry, then the expenditure of a greater selling effort by any one firm may make it necessary for other firms to increase their selling expenditure merely to retain the same volume of sales that they had before This sort of competition eliminates the profits of the various firms, not by causing them to cut their prices to the benefit of the customer, but by causing them to increase their costs to the benefit of nobody but the advertising agencies and salesmen If the results of selling effort were always in direct proportion to its cost, so that when one firm spent more on selling costs and took business away from another firm, the second firm could always get the business back by making a similar expenditure, then no firm would start such a competition, since to do so would be merely to invoke retaliation But, the peculiarities of the mind of the buying public being such as they are, there is always the possibility that a small expenditure for advertising and selling—if done in a very clever way—may yield at least temporary results out of all proportion to its cost Furthermore, customers may become so firmly attached to the firm which first increases its selling effort that the other firms from whom the business was drawn might have to spend a much greater sum to recapture it than the first firm spent to get it away from them Consequently there is always a temptation to start this sort of competition

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[3] Some firms have attempted recently to obtain answers to these questions, with some degree of success

The problem is further complicated by another of the peculiarities of advertising Where there is a large potential market to be drawn upon by attracting customers away from entirely different industries, the advertising by any one firm may bring trade not only to itself but also to other firms in the industry For example, a Chevrolet advertisement may be the factor that arouses a desire in the mind of a buyer to buy a new car rather than take a trip to Brazil, but after making the rounds of the dealers to find out what they will allow on his old car, he may end by buying an entirely different make, such as a Plymouth or Ford Thus Chevrolet advertising will have sold a car for Plymouth or Ford That this is not at all an unusual result may be deduced from the proceedings of many a trade-association meeting It is not at all unusual at such meetings for the large advertisers to stand up and berate their competitors for not spending their fair share to make the public "fountain-pen conscious" or "window-sash conscious" Among industries we are thus confronted with what has been called "competition for the consumer's dollar"

We must now observe certain peculiarities of this inter-industrial competition in selling effort In the first place, if only one industry puts on an intensive advertising and selling campaign, the additional business thus obtained may happen to draw from such a great number of other industries and from such a still greater number of individual firms that the amount of business lost by any one firm or industry may be so negligible that it will not bother to try to get the business back Of course, as more and more industries tend to do the same thing, the increase in business which any of them can gain from a given amount of advertising will tend to diminish. At the same time the losses suffered by the firms and industries that have not previously advertised will begin to approach such serious proportions that they too will be motivated to increase their selling efforts, either to try to recapture their lost business or to retain what business they still have Sooner or later, the increased selling efforts of all industries and firms will tend to nullify or at least to detract considerably from the benefits gained by the firms which first started the competition However, the full effects of this retaliation may be so long delayed that the interim gains which they have made will have exceeded the increased selling costs

The same thing may be true even when the gain of one industry that increases selling effort is largely at the expense of another single industry It is seldom indeed that retaliation will be immediate and direct For example, the automobile industry may increase its advertising and draw most of its business from people who would otherwise have taken trips to Brazil If the steamship companies increase their sales efforts in turn, instead of having any immediate effect on the automobile industry most of the steamship tickets may be sold to people who would otherwise have bought an electric refrigerator Refrigerators may then recover at the expense of radios, and so on It may thus be a considerable length of time before the automobile industry, which started the process, begins to feel the effects of retaliation either in loss of business or in increased costs of maintaining the same volume of business And even if it eventually does feel the effect, it may not be conscious of the cause.

The tacit assumption that underlies the preceding discussion is that there are a large number of buyers ready to change their purchases from one product to another or from one firm to another under the influence of advertising and selling efforts on the part of the various firms and industries However, we must not ignore the fact that among the customers of any firm or any industry there will be extreme variations in the degree of such willingness to change the direction of their purchases We are here concerned with two conflicting psychological tendencies the desire for novelty or improvement and the force of habit The strength of these two tendencies will differ widely from one individual to another We are all familiar with individuals who buy the same products from the same stores in an almost unvaried routine, we are also familiar with other individuals who are never satisfied and who are always changing both the products they buy and the firms from which they buy them These psychological forces will also differ in the same individual with respect to different products and different firms All of us have at least some few products with which we are so well satisfied or which we consider so necessary to our well-being that it would require a tremendous amount of inducement to make us cease purchasing them and buy something else This applies to the products themselves, to brands of products, and to the firms with which we trade On the other hand there are usually some commodities in respect to which we are just on the margin of doubt as to whether we shall buy that particular commodity or another

Good Will

This brings us to the most important source of permanent or quasi-permanent gains from advertising and selling effort, that is, what is known to the trade as "repeat orders" When people are just on the margin of doubt as to whether to continue buying the same commodity or trading with the same firm, a comparatively small expenditure of well-directed advertising or selling effort may induce them to start buying a different commodity or to start trading with a different firm

Once they have made the change, some of these buyers may become so well satisfied with the new commodity or the new firm that either they refuse to change again at all, or that the necessary effort to induce them to change again would be so costly that no other firm could gain enough from these customers' trade to cover the costs of inducing them to buy Once a firm's clientele is made up of a majority of this type of customers, it can retain the same volume of business with relatively negligible selling costs This condition is what is known as the "good will" of a business

The value of such a good will can often reach fantastic amounts in the case of products which are sold nationally or internationally under a certain trade-mark or brand name Consider, for instance, the value of such names as "Wrigley's Spearmint," "Smith Brothers Cough Drops," "Frigidaire," "Chesterfields," and so on The name "Wrigley's Spearmint" is undoubtedly worth many times the value of the plant and equipment with which the chewing gum is made I might start to manufacture a chewing gum identical in chicle and flavor content with "Spearmint", but if I spent 100 times or even 1,000 times the amount which the Wrigley Company is now spending on advertising, it is still a doubtful question whether I would be able to attain a volume of sales equal to theirs I should certainly hesitate to risk my own money in such a venture, and I doubt very much whether I could find a banker foolish enough or optimistic enough to lend me the money

The existence of good will, coupled with the heavy expenses which a new firm would have to incur to enter the competition, will often prove to be such a deterrent to the entrance of new firms into an industry that the successful older firms may attain a degree of monopoly power with respect to their own customers which may be nearly perfect over a long period of time advertising cost It will usually be impossible to determine whether a given expenditure on advertising should be treated as a "fixed cost" or as a "variable cost" To the extent that a certain advertisement attracts repeat customers to the firm, it should be considered as a fixed cost, that is, the advertisement will not have to be repeated for these same customers, and the more that they buy over a period of years, the smaller will be the cost per sale of this particular advertisement In other words, the annual output of the firm is increased by an expenditure which has to be made but once To the extent that advertising attracts only single-time buyers, it must be regarded as a variable cost, it will be necessary continually to repeat the expenditure to try to maintain the same volume of business Under these circumstances, the full cost of the advertisement should be assessed against the sales which result from it today, this week, or this month We have seen from the previous discussion how difficult it is to determine whether advertising attracts repeat customers or single-time buyers Even a department store which advertises a "sale" to last only one day may thereby attract some customers who will become permanent customers, so that some unknown part of the advertising cost of the sale should be considered a fixed cost and the rest a variable cost

Price Cutting versus Increased Selling Costs

We may now consider for a moment some of the merits of price cutting *versus* increasing selling costs We shall not have space here to exhaust the subject, but some of the salient points may be given attention Such a question may be considered both from the point of view of the individual businessman and from that of society

The individual businessman is of course interested in trying to make the greatest possible net profits or the least amount of loss As we have seen, it is not always easy for him to determine whether cutting prices or increasing selling costs will yield him the best results When such a doubt exists, he may prefer to advertise rather than cut prices, since if advertising does not pay he may discontinue it, losing only the cost of the advertising, whereas, if he cuts prices, he may find (if the results are not to his satisfaction) that it is difficult or impossible to raise them again and still retain the old volume of sales he had before the cut

There is another objection to price cutting from the businessman's point of view The increased business obtained by a price cut may happen to come largely at the expense of other firms in the same industry, in which case retaliation may be immediate and drastic On the other hand, the increased buying created by advertising may happen to come largely at the expense of other industries There is also the possibility, as we have seen, that the advertising by one firm may bring some business to a competitor in the same industry In the case of increased advertising, the effects of retaliation by other firms or other industries may be so long delayed that temporary profits are possible, and, in any event, cause and effect may not be clearly apparent to the businessman himself Thus we have the rather curious statement by trade associations that price cutting is an "unethical" form of competition, while using advertising to overpraise one's own product to the point of downright lying is apparently entirely "ethical"

Then, too, from the point of view of the businessman, business that is secured by a price cut may be lost to a competitor who cuts prices still further or offers better quality for the same price, but building a complete delusion in the mind of the buyer through advertising may secure business for the firm which cannot be taken away by a competitor's price cut and sometimes not even by a competitor's advertising Only in the event that a firm is selling a product whose merits will be obvious to a buyer when he uses it can the firm feel confident that a price cut will bring it a large number of permanent new customers

Now let us consider the question from the viewpoint of society First, any advertising which does not influence buyers is a sheer economic waste This will be a waste from the point of view of the businessman also, but while the businessman would regard a loss through bad advertising and a loss through an unwise price cut with equal horror, the buying public would gain from the price cut.

Some advertising may actually increase the satisfaction which a buyer derives from a product Thus, if an advertiser succeeds in convincing me that the cheap car which I drive is just about as good as a $7,000 00 car, and if I stay convinced *all the while I own the car,* the satisfaction I derive from owning the car is greatly enhanced and my sense of well-being has been increased by the ad Against such a merit of advertising must be set the fact that it may make me aware of the merits of articles I cannot afford to buy and dissatisfied with those that I can buy The advertisements for beautiful sailing yachts may thus be a source of disutility to me

Something may even be said for the much-abused patent medicine ad Insofar as people take these medicines for imaginary illnesses, the advertisement may constitute the principal part of the cure The statement in the testimonial, "It did wonders for Mrs Blue and will do wonders for you," may be as efficacious as the work of any faith healer Against this, of course, must be set the fact that such advertisements very often prevent people from going to a physician for real illnesses which a physician alone may be able to cure

Advertising may also claim that it makes us acquainted with more and different kinds of products and with more and different firms, and thus is an aid to the buyer in making wise choices Whoever makes this claim, however, must actually show that consumers' choices are wiser as a result of advertising Such a claim can only be made for truthful advertising, and even then, if advertising raises the cost of goods to the consumer, it must be shown that he is better off with fewer goods well chosen than he would be with a greater number of unadvertised but cheaper goods

This brings us to the much-discussed question of whether advertising raises or lowers the price of a commodity If a commodity is being produced under decreasing costs of production, and advertising is capable of expanding the market in such a way that the point of maximum net returns for the manufacturer will be at a lower price than it was before, then the price of the product as a result of advertising may be lower than it would have been without, *provided* the manufacturer is sufficiently aware of the nature of the demand curve to realize that a greater profit could be secured at a lower price This may be true of a great many industries as long as we are looking at only one firm at a time. However, when all or a great many firms and industries are competitively clamoring for the buyer's attention, the amount of selling costs which will have to be incurred by each of them to gain a large market may be such that it will prove that increased selling costs will have more than offset the gains in lowered production costs If such is the case, then the public could have been better served had the competition been on a price basis alone We have not sufficient data on which to answer this question as regards the sum total of all products From a casual examination it would appear that advertising has increased the price of some products and lowered that of others To the extent that advertising succeeds in inducing buyers to select products by particular brand names rather than by comparing the price and quality of *all* products before they buy, it is certainly an inducement to the manufacturers to compete on a basis of increasing selling costs rather than cutting selling prices

CHAPTER XVII

Problems of Transportation

THE ECONOMIC importance of transportation can hardly be exaggerated, because, as Adam Smith pointed out long ago, the division of labor is dependent upon the extent of the market, and it is the nature and costs of transportation which determine the extent of the market Low-cost transportation facilities also increase the mobility of labor, allowing workers to move from regions where they are poorly paid to those where better wages prevail All of the advantages of interregional and international trade arise only because transportation of goods and people makes such trade possible

It is, perhaps, idle to attempt to calculate the immeasurable value of transportation as a whole. We are repeatedly forced to consider whether a specific means of transportation between two given points is worth what it costs In the case of an existing means of transportation, all that is necessary is that the value of the service rendered be equal to the costs of operation and maintenance in order to justify its continued existence In the case of proposed transport routes or facilities it becomes desirable to calculate whether the benefits expected from it will cover costs of construction as well as costs of operation and maintenance This problem will likewise involve the selection of the most economical means of transportation For example, through certain parts of African and South American jungles no means of transport more elaborate than bearers carrying packs and walking a trail is economically justified, even the small cost of the crudest unsurfaced road being too high for the possible volume of traffic to be carried On the other hand, between two populous manufacturing centers nothing short of a four-track standard-gauge railroad, a four-lane concrete highway, and airplane service may be adequate to handle the volume and diversity of traffic which can most profitably be carried Before considering more specific problems, a brief discussion of the field and function of the various forms of transport may be a help in acquainting us with the general picture

Roads

Roads are one of the oldest means of transportation Their economic importance has varied from time to time, as has their place in the transportation system Although the ancient Roman roads were built primarily for military purposes, they soon became important arteries of commercial transportation

During the Middle Ages the art of road building declined and with it the importance of wagon roads as a means of transportation The soft surface of Medieval roads set very low limits upon the weight of the loads which might be carried and consequently made roads an extremely expensive means of conveyance as well as a slow and uncertain one The lack of strong governments during the Middle Ages also exposed road-borne freight to the danger of confiscation by highwaymen Even where the highwaymen were suppressed, the feudal barons over whose domain the goods passed often levied heavy tolls on merchandise crossing their territory

The intolerable condition of early English roads is attested in the diaries of numerous travelers of the period The repeated introduction into Parliament of various measures intended to improve the condition of the roads is evidence of the seriousness of the problem. One of the most amusing was a regulation that all freight-carrying vehicles must have tires eighteen inches wide—a vain hope to prevent the rutting of the soft roads by heavy vehicles

Modern road construction dates from the road engineering of Metcalf, Telford, and MacAdam, the latter of whom discovered the process of mixing crushed stone with the topsoil of the road to give it a hard surface The Macadam road still bears his name Although the Roman roads were built by the state, many American Colonial and some English roads were built and operated by private companies Toll gates and toll bridges which were maintained to charge people for the use of such roads may still be found standing in some parts of the country A high-speed toll road is even now being proposed to cross the State of Pennsylvania from Philadelphia to Pittsburgh and a privately owned toll road up Mt Washington is still in operation

Although there were some important arterial highways in the early history of the United States, such as the Cumberland Road, the Boston Post Road, and the Cherry Valley Turnpike, the roads were much less important carriers of heavy freight than the rivers and canals and the railroads that were later developed Until comparatively recently our road systems have been developed largely as "feeders" for the other forms of transportation and for serving small communities where the volume of freight traffic did not justify the building of branch railroad lines The development first of passenger automobiles and more recently of trucks and busses has again made the roads an important form of conveyance of long-haul traffic

Motor truck transportation of large consignments of heavy freight for long hauls is not, even today, as economical as railroad transportation of the same type of loads On many types of loads the trucks have one distinct advantage There need be only one loading and one unloading to carry the goods from the point of shipment to the place where they are actually to be delivered Not only is this a saving in handling costs but also, particularly on short hauls, it may result in a considerable saving in time of delivery

The friends of the railroads also tell us that truck transportation is being unfairly subsidized in that the trucks travel over publicly built highways and do not pay their fair share of the cost of construction and upkeep of the roads upon which they travel There is undoubtedly some truth in this claim Just what amount the "fair share" of such costs would be has yet to be determined We should not forget that many railroads were subsidized during their construction periods by large gifts of public lands

The comparative infancy of the airplane and the recent improvements in freight and passenger locomotives on the railroads makes it impossible for us to prophesy what the final position of roads will be in our transportation system either for freight or passenger traffic For some classes of traffic it is likely that the roads will again return to the status of "feeders," for example, in carrying passengers to and from airports For other classes of traffic the roads may prove to be the most economical or convenient even on long hauls

In the case of public roads, their free use makes it difficult to measure their productivity However, when a decision is being made as to whether a new road is to be built, a reasonable test that the authorities may apply has been suggested by Professor Machlup An estimate could be made of the amount of revenue that could be earned by the road if it were operated as a toll road If this is in excess of the estimated cost of constructing and maintaining the road, then the gain in real income to the people from building the road and allowing free use of it will be in excess of the costs In cases where relief labor is used on the roads, it may be justifiable to deduct the cost of this labor from the total cost of the road in making the estimate, if this relief labor would otherwise have been supported in idleness or employed on nonuseful projects

Waterways

Where both shipping and receiving points are conveniently located as regards navigable water, water-borne transport has always been, and is likely to continue to be, the cheapest means of conveying heavy freight Except where the waterways are artificial or must be kept navigable by artificial aid, there is absolutely no cost for roadbed Ships can also carry a greater weight and bulk per horsepower of engine than any other form of conveyance

There are, however, many serious disadvantages under which water transportation labors It has always been a comparatively slow means of transport and is likely to continue to be so It is also relatively inflexible, as in the case of direct shipments, when both shipping and receiving points must be on navigable water To obtain business from beyond these points there must be a combination with other means of transportation, for canals cannot ordinarily be run to warehouse doors as can the spur tracks of railroads For many kinds of package freight, the cost of unloading from freight cars into boats and then loading again into freight cars at the other end of the water haul makes it advisable to ship the entire distance by rail rather than by a combined rail and water route For bulk cargoes which can be handled mechanically, the advantage is the other way around Iron ore, for instance, is handled so efficiently by the mechanical loaders and unloaders in the Great Lakes ports that the ore is regularly shipped by train to Duluth, loaded on boats, and reloaded into freight cars at Ashtabula, Conneaut, and Fairport, Ohio, for shipment to the steel mills in Pittsburgh and Youngstown So great is the saving in costs of this combined rail and water route that the steel companies, rather than to ship directly by rail from the mines, maintain huge storage piles of ore both at the plants and at the lower lake ports to carry them through the winter season when navigation is closed A similar advantage is found in the shipment of grain by water, since the grain is likewise handled mechanically in bulk cargo lots The difference between the prices of grain in Buffalo and Chicago in summer and winter regularly reflect the increased cost of all-rail shipment in the winter

Canals were once an extremely important form of water transport but they have suffered a decline since the advent of the railroads They are quite expensive to build and maintain and their courses are sharply limited by the topography of the land Most modern canals (such as the Suez and the Panama) have been built not to compete with existing land transportation but rather to shorten sea routes or to connect two important water transportation systems The development of Diesel-engined barges is, however, bringing about an increase of traffic on many old canal systems and may lead to a slight extension of some of them The comparative unseaworthiness of the old canal boats on lakes or oceans, as well as their extreme slowness on the canals themselves, was a serious handicap to them in competing with other forms of shipping

Railroads

Since the 1850's the railroads have become the backbone of our transportation system and in spite of present difficulties (financial and others) give every promise of remaining as such, at least for the near future The ability to haul long trains of heavily laden cars with a single source of motive power, the possibilities of rapid transport over unobstructed roadbeds, continuous operation night and day, the wide number of places that can be reached by rail, and the comparative safety of railroad transportation are advantages which are not easily superseded That the major railroads are able to survive one financial reorganization after another and one legal handicap after another is ample evidence of their important place in our transportation system

Perhaps even now the word "system" should not be used in connection with our railroads if we are thinking of railroads in general rather than of certain particular lines Certainly nothing less systematic can be imagined than the early construction and organization of our railroads The first railroads were usually built to connect two cities that were fairly close together with little, if any, thought as to where the line was finally to extend In the early days the different railroads used differently gauged tracks, so that even where two roads happened to intersect, the cars from one could not run on the other The first long trunk line was organized by Commodore Vanderbilt, who bought up a number of short lines extending up the Hudson and across the State of New York and connected them to form the New York Central lines between New York and Buffalo

Much of the haphazard nature of our railroad lines is traceable to the era of railroad-building fever which followed Vanderbilt's initial success The stock market literally went crazy in the buying of railroad securities, funds could easily be secured for the construction of almost any railroad to almost any place (Some of the roads were actually constructed and some were not) Most of the railroads which were started at this time were intended by their sponsors to reach the Pacific Coast eventually The evidence of this fond hope still persists in the phrase "and Western" which embellishes the names of many roads that were started at this time—for example, Delaware, Lackawanna & Western, New York, Ontario & Western, Norfolk & Western Many others tried to imitate Vanderbilt's successful scheme of attempting to buy existing lines to unite into a railroad system During this competitive period many small lines and branches were purchased, not so much for their value to the system which acquired them, but often merely for the purpose of attempting to thwart the plans of rival builders of railroad systems Many of the new roads that were constructed, instead of following the route indicated by efficient transportation or volume of traffic, simply turned their courses to go through the towns or villages which would grant them the greatest amount of subsidy or which would purchase the greatest quantity of their stocks and bonds Although there were no Rotary Clubs or Chambers of Commerce in those days, the local boosters organized themselves and bent every effort to ensure the running of the railroad through their town rather than through the near and hated rival town

Many railroads were built far in advance of the need for their existence, many traversed territory that even today has not produced a profitable volume of traffic, and three transcontinental lines were built when there was hardly enough business to justify one Since the bulk of the profitable freight and passenger traffic still lay east of Chicago, the competitive effort to tap this source of revenue possibly resulted in even more overbuilding of railroads in the East than in the West There followed an era of cutthroat competition which resulted in extremely curious rate structures, the roads cut their rates to absurdly low figures between points where there was competition and then tried to make up the difference by charging extortionate rates between points on their own lines where there was no competitor It was not at all uncommon for through freight from Chicago to New York to be charged a lower rate than was charged on the same class of freight between two cities only one hundred miles apart More will be said about rate structures later Notice, however, that during this period of cutthroat competition it was not sufficient for a town to have one railroad entering it in order to have low freight rates and hence adequate transportation for business purposes There would have to be two competing roads That the railroads themselves were not averse to cutting into a rival's protected territory explains the construction of many branch lines that are practically useless today

After a period of supremacy in most classes of freight and passenger traffic, and then a period of relative decline, the railroads today are attempting to regain lost traffic Through the experimentation with streamlined trains and new types of motive power, they are attempting to compete with the airplanes for the fast passenger and express business By lower fares and better accommodations than formerly, they are attempting to regain passenger business from the bus lines and to attract people from private automobile driving With store-door delivery on many types of merchandise, they are striving to meet the competition from the motor trucks for freight traffic It is too early to determine what the effects of these various measures will be, either on the railroads themselves or on the competing means of transportation

Airlines

The fact that airplanes and airlines are still in a state of relative infancy leaves us in doubt both as to the future of airlines themselves and as to the competitive inroads they will make upon other forms of transportation It seems almost safe to prophesy that the use of the airplane will be confined mainly to relatively light loads and to classes of traffic which place a premium on speed The amount of motive power required merely to lift the plane, its crew, and it gasoline supply tends to place severe engineering limits upon the amount of useful load which even the largest and best designed modern planes can carry Since a failure of either motive power or structure of the plane usually means a serious accident, the planes must be serviced better and be replaced more often than would be the case with trucks or busses. In consequence, the airlines are forced to charge considerably higher rates for the same weight or bulk of load than do other forms of transportation, and their business is thus confined to those classes of traffic in which the superior speed of the plane is a sufficient justification for the payment of the higher rates. (Aside from its speed, the plane also has an advantage in being able to carry freight into otherwise inaccessible spots, such as the transport of mining machinery to the new Canadian gold fields and to points in the Andes.) In spite of its limitations, the airplane is destined to become a much more important factor in our transportation system than it is at present. The rate of its progress will be governed largely by the adoption of proper safety measures for air transport.

Transportation Rate Making

One of the most difficult problems in transportation is that of determining proper rate schedules for the various classes of freight and passenger traffic. Many of the problems of rate making are quite similar, regardless of whether the rates are set by an unregulated carrier or whether they are to be determined by some regulatory body such as the Interstate Commerce Commission. The unregulated carrier would, of course, be seeking the point of maximum net returns, while the regulatory body is charged with the duty of limiting earnings to a certain fixed percentage on the valuation of the property. Nevertheless, both are confronted with the problem of setting the different rates for various classes of freight and passenger traffic. We shall use the railroads for an example of rate-making policies, but it will be found that the principles developed are applicable, with some slight modifications, to other transportation agencies.

Unregulated Rates

The problems of a railroad that is free to set its own rates will first be discussed, later the qualifications imposed by government regulation will be introduced. Writers on railroad rates are fond of using the terms "cost of service rendered" and "charging what the traffic will bear." When an examination of the use of these terms is made, however, it may be seen that "cost of service rendered" is simply another name for marginal cost and that "charging what the traffic will bear" is the marginal revenue principle.[1] The process of fixing railroad rates is then simply one of attempting to equate marginal cost and marginal revenue in exactly the same manner as that which was discussed in the determination of prices under monopoly and monopolistic competition.[2]

A railroad is in a position to determine with a fair degree of accuracy the marginal costs associated with any particular addition to its freight or passenger business, experience will show the amount of the additional fuel and wage cost involved in running one more train over its lines. Likewise (with somewhat less accuracy), the cost of additional wear and tear on rolling stock and roadbed occasioned by running the one extra train can be estimated. The cost of adding one more car to a train which is already running on schedule may also be determined. This cost will not be constant for each added car but will start to drop sharply with the second car on the train. It will finally reach a low point and then increase very slowly as more cars are added, until the hauling capacity of the locomotive is noticeably overburdened. A train of fifty freight cars may have less than double the variable cost of a train of twenty-five cars. A point will eventually be reached at which it is cheaper to split the load between two trains rather than to add more cars to the same train Particularly in the case of passenger business it may be found that it is desirable to add another train, running at a different hour, before the point of least cost of adding more cars to the first train is reached This will occur when a sufficient amount of traffic can be attracted by the convenience of a train at a different time to offset the somewhat higher cost of its operation before the full capacity of the first train is reached

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[1] I am indebted to Professor Machlup for this observation.

[2] See Ch. X.

We hear much about the burden of heavy fixed charges in connection with the operation of a railroad Interest charges on cost of construction will continue whether any trains are run or not Expenditures for the signal system, maintenance of rails and roadbed, and similar expenses will remain about the same whether ten or a hundred trains a day run over its lines While the number of clerical help and station employees can be varied somewhat in response to changes in the volume of traffic, this will usually be found advisable only in response to long-continued changes in volume of traffic and not with daily or weekly changes Except for train crews and engine and car repair shops, most of the labor force of a railroad must be organized to handle its peak loads and cannot be materially reduced in temporarily slack times

Although fixed costs bulk large in the total cost of a railroad, and although their amount may be the factor which determines whether the road operates at a profit or a loss, fixed costs have nothing to do with the determination of rates by an unregulated carrier If marginal costs and marginal revenue are equated, this procedure will yield the greatest possible surplus of revenue over variable costs, which may happen to be enough to pay part or all of the fixed costs or to yield a profit, as the case may be (Sometimes the attempt is made to allocate a part of the fixed costs to some particular class of traffic, but this procedure has no economic sense nor significance It may be of some practical use only in attempting to defend lawsuits involving railroad rates before an economically ignorant judge or jury)

It has been stated before that "charging what the traffic will bear" is nothing more nor less than taking proper account of decreasing marginal revenue in setting railroad rates The fact that the railroads are in a much better position than most sellers to practice price discrimination in fixing their charges gives rise to many interesting problems

In the case of freight traffic the demand for transportation is a derived demand, the direct demand being for goods at the point of destination The demand for transportation services is thus derived from the demand for the goods themselves In examining the conditions under which a railroad may maximize total revenue by charging a high or low freight rate on a particular commodity between two certain points, we can do no better than to apply Marshall's[3] four principles governing the elasticity of derived demand The four conditions for high freight rates are as follows

(1) The services of the railroad should be essential, or nearly essential, to the delivery of the commodity at the point of destination, no good substitute means of transportation being available at a moderate price The closest possible substitute, of course, would be another railroad running between the some points of origin and destination of the commodity The degree to which other means of transportation approach being close substitutes for railroad services will depend both upon their nature and the nature of the product For example, the railroads enjoyed almost a perfect monopoly in the transportation of perishable fruits and vegetables until high-speed refrigerated trucks were developed

(2) The commodity itself should be one for which the demand is highly inelastic, so that a check to its supply will

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[3] Marshall, Alfred, *Principles of Economics,* Eighth Edition, Book V, Ch 6, p 385, Macmillan & Co , Ltd , London, 1927

cause consumers to offer a much increased price rather than go without it This condition implies that there are no products in the community of destination that the people will purchase readily if the price of the commodity in question rises materially It also implies that local production of the given commodity is impossible except at extremely high costs, otherwise, although high freight rates might yield large revenue for a short time, if they stimulated local production of the article they might result in a total loss of all traffic on this commodity to this community

(3) Only a small part of the delivered cost of the commodity should consist in the cost of transportation Thus, a freight rate of $20 00 a ton would double or more than double the delivered cost of coal in most communities and would thus result in a serious decline in the amount of coal purchased, whereas a freight rate of even $100 00 a ton on silk neckties would constitute so negligible a part of the delivered price that it would hardly be noticed by the buyer and would cause almost no decline in purchases, consequently freight traffic would not fall off because of the high rate

(4) Even a small decrease in the amount of the commodity purchased should cause a considerable fall in its price at the point of origin In this case, even though the demand for the product at the point of destination may be somewhat elastic, producers of the product will pay the high freight rates and accept lower prices for the product in order to avoid discouraging its sale by a high delivered cost

It is not necessary, of course, for all four of these principles to be fulfilled in order for freight rates to be high on a certain commodity between certain points, but the greater the extent to which each one is fulfilled in practice, the higher the freight rate which will yield maximum total revenue, or in other words, the steeper will be the slope of the demand curve for that transportation service

Discrimination in Freight Rates[4]

Price discrimination consists of the selling of the same service (or good) by one seller to different buyers at different prices Discrimination is possible only when buyers can be divided into groups which are really different markets. This implies two conditions (1) that buyers who are charged a higher price cannot or will not enter the lower-priced market, and (2) that the service cannot be resold by those who are charged the lower price to those who would have to pay the higher price if they bought from the original seller In the case of freight rates, this grouping or classification is comparatively easy, since it is impossible to change one commodity into another[5] for the purpose of securing a different freight rate, nor will a freight rate which is applicable only between two designated towns be available for shippers between other points

When the different classes of customers have different elasticities of demand for the service, discrimination yields a greater total revenue than that obtained by charging the simple monopoly price A group with a very inelastic demand for transportation may then be charged a high freight rate without much diminution in the volume of traffic received from them. At the same time another group with a more elastic demand may be offered a low freight rate in order to induce them to ship in large volume In this case a simple monopoly price (the same for both groups of customers, nondiscriminatory) would not be high enough to take full advantage of the inelastic demand of the first group, nor would it be low enough to take full advantage of the large volume of traffic to be obtained at low rates from the second group

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[4] This section is based largely on the work of Joan Robinson Those who desire a more detailed and thorough discussion of price discrimination than is possible in a text of this sort should read Chapters XV and XVI in her *Economics of Imperfect Competition,* Macmillan & Co , Ltd , London, 1934

[5] Except, of course, that raw materials or finished products, or parts or assembled machines, may be shipped, depending on which has the cheaper freight rate In the case of lower rates on automobile parts than on assembled cars, this really represents a difference in cost to the railroad (the unassembled parts are less bulky) rather than an example of true price discrimination

For purposes of simplicity, discrimination was described above as though it were practiced between two groups only If, after this first division of customers has been made, there still remain within either group shippers whose elasticities of demand for transportation are different, it will then pay to subdivide that group still further and charge different rates to each subdivision It will pay to continue to subdivide and discriminate so long as any group still contains customers with different elasticities of demand The important practical difficulties are the finding of means of classifying customers which correspond with their respective elasticities of demand, and the fear that too much discrimination may bring about calls for legislative action by the government *Perfect discrimination* would consist in charging a different rate to each shipper whose elasticity of demand for transportation differs from that of any other shipper

While the railroads have by no means achieved perfect discrimination, they must be credited with a fairly thorough attempt in this direction The reader who is interested may ask his nearest freight agent to show him the rate classification book He will be given a book the size of a city telephone directory listing the different ways in which freight rates are classified It may be interesting to note the different bases that are used by a railroad to classify traffic for the purpose of charging discriminating rates

Commodity discrimination consists in the charging of different rates per ton mile on different commodities of approximately equal bulk (Bulkier commodities, since they use more space, cost more per ton to carry, hence a higher rate that represents only this difference in cost is not discriminatory)

For example, fluid milk and fuel oil are of nearly the same specific gravity and both can be handled in bulk [6] in tank cars Milk, however, fulfills fairly well our four conditions for a high freight rate (see p 305), while fuel oil conforms to scarcely any of them (1) The substitute means of transportation for milk are few, and with the single exception of trucks on short hauls, distinctly inferior Fuel oil can be carried any distance by water or truck without risk of spoilage (2) The demand for milk itself is much less elastic than the demand for fuel oil at most points of destination, many other sources of heat are reasonably good substitutes for fuel oil, but there are no really close substitutes for milk (Canned milk is the closest substitute for fluid milk but most people prefer the fluid) (3) Fluid milk sells at 12 cents to 17 cents per quart (equal to 48 cents to 68 cents per gallon) retail in most large cities, while fuel oil retails at about 7 cents or 8 cents per gallon Thus a freight cost of 12 cents per gallon would constitute only one-fourth of the delivered price of milk, while a freight cost of even 10 cents per gallon on fuel oil would more than double its delivered price in most cities (4) Dairy herds are decreased very slowly in response to declining farm prices of milk Milk will spoil if not sold within a day or two, and if not sold as fluid, must be sold to the creamery or evaporating plant at much lower prices Fuel oil, however, may be shipped abroad easily if domestic freight rates are too high Thus, the elasticity of the domestic supply of fluid milk being much less than that of fuel oil, the farmer may be much more easily forced to bear a large share of the freight cost than the oil refinery

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[6] It is true that milk must be shipped in glass-lined tanks, but both oil and milk shippers often furnish their own tank cars, thus making this cost to the railroad the same for both While milk must be carried as fast freight and oil may be carried as slow freight, nevertheless, the fact that about the same amount of milk is shipped every day allows the railroad to adjust its working force very closely to the volume of traffic in milk The shipments of oil, being intermittent, may happen to come just at the time when the road is busy with a large volume of other traffic Thus, the actual carrying costs to the railroad may not be materially different as between milk and oil

The railroad man would say that "the traffic in milk will bear a higher freight rate than will that in fuel oil" We say that the elasticity of demand for milk transportation is less than the elasticity of demand for oil transportation, therefore, freight rates which result in a volume of traffic that makes marginal revenue and marginal cost equal will be higher in the case of milk than in the case of fuel oil The reader who is familiar with other commodities may find it interesting to analyze in a similar way the possibilities of freight rate discrimination between them

Local discrimination in freight rates consists in charging, on different hauls, freight rates on the same commodities which are not proportional to the difference in cost in carrying the goods We should note immediately that a rate which is lower per ton mile on a long haul than on a short haul is not necessarily discriminatory[7] We may regard it as clear evidence of discrimination, however, when we see a higher *total* freight charge for the same commodity for a short haul than for a long haul, or when two different hauls of different length are carried for the same freight charge The principal and perhaps the only occasion for local discrimination in freight rates consists in the existence of the other possible means of transportation and in the rates charged by other carriers for service between the same local points

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[7] A train crew can only be hired for a certain minimum length of working day Costs of loading and unloading will be the same regardless of the length of the haul On steam locomotives, the amount of coal lost in building up steam pressure and allowing it to die down will be about the same for one mile as for one hundred miles None of these are fixed costs, since they would not be incurred at all if the train were not run It may be seen, however, that these elements of average variable cost will be very high for the first mile and then will decline rapidly per ton mile, as the length of the haul is increased, until a certain minimum cost point is reached In terms of marginal cost, all the cost elements mentioned above will be in the marginal cost of the first mile The marginal cost of the second, and immediately subsequent, miles will consist only of the coal necessary to haul the train one more mile and the infinitesimal additional wear and tear At intervals of every 200 miles or so the railroad usually finds it advisable to change engines and train crews If followed rigidly, this practice would introduce a considerable amount of "lumpiness" into the cost schedule However, where a particular haul is only slightly in excess of the standard distance, the same engine will be kept on the train and the crew paid overtime wages Thus, while marginal cost will rise somewhat for the added mileage, it will not rise as much as if engine and crew were changed for an additional distance of only ten or twenty miles

Competition between a railroad and some other form of transport (a waterway, for example) is in the nature of monopolistic competition The two services are not perfect substitutes for each other A waterway may be slower and may offer more difficulties in loading and discharging cargo Between any two points where water competition exists, rail freight rates will not be equal to water freight rates for all classes of traffic but rather will be based on the value of the difference in service which it is estimated exists in the minds of the shippers On many classes of traffic, the railroad may not find it advisable to put rates low enough to attract shipments from those who are completely indifferent to the difference in service On the other classes of traffic, the volume to be gained by a low rate may be such that the most profitable rail rate is as low as, or perhaps even lower than, the water rate

The unregulated competition of two railroads operating between the same two cities approaches the nature of pure duopoly, since the services of both are nearly perfect substitutes for each other It is seldom, however, that competition exists between two railroads for business from all the towns along the lines of either road More usually the roads are so constructed that competition exists between them as to important terminal cities but so that at intervening points each road traverses a different route through different towns In such a case, the rates will discriminate against the towns where no competition exists Two roads may be competitive between New York and Buffalo, or between New York and Chicago, with little competition at many intervening points Under these circumstances, in the period before railroad regulation it was not at all uncommon to find lower total freight charges (not merely lower ton mile rates) between New York and Chicago than were charged for less than half the distance on each line between points where no competition existed

Since a railroad can gain by carrying any load for any rate above variable costs rather than to lose that particular bit of traffic, competition between railroads tends very readily to become "cutthroat" in character Before rates were regulated, competition among the several roads on through freight between Chicago and New York was often of this character A classic example is recorded in which the rate on live cattle from Chicago to New York was driven down to $1 00 per carload Thereupon Jay Gould, of the Erie Railroad, proceeded to make money by going into the cattle business and buying cattle and shipping them over his rivals' lines at the low freight rate (The profit in this would last only until the New York price of cattle dropped, or the Chicago price rose, to the level indicated by the low freight rate)

Rate "wars" of this sort will not endure for long Either the roads come to an agreement to divide the traffic between them at some rate which is more profitable to both, or else the road with the stronger financial backing may force the weaker road to sell out In any event the result is a return to higher monopolistic rates There are some temporary advantages to be reaped by certain localities during these rate wars but there are also long-run ill effects to offset them at least in part Exceptionally low freight rates may cause heavy concentration of industry in the favored locality After the rate war is over and rates are raised again, many firms may find that they can no longer compete with firms in other cities more advantageously situated under the new rate schedules Either a costly moving process results or many of the firms are forced out of business The community also may then suffer a heavy burden in caring for the unemployed workers who had previously been attracted to it

Another peculiarity may be noted in connection with local discrimination The actual cost of high freight rates will tend to be borne more by either the shipping or the receiving community, depending upon the competitive means of transportation in each place Thus, if an isolated farm community is served by only one railroad (and no good highways or other means of transport), the farmers who ship into a large city which is entered by other railroads will have to bear the full burden of highly discriminating freight rates People in the city will pay no more for the farm produce from this community than they have to pay for similar goods from other regions enjoying lower freight rates Contrariwise, on inbound freight the community served by only one means of transportation will have to bear most of the cost of high freight rates Unless the difference in freight rates is paid by the buyer, sellers will not ship into this community when they can send their goods to other markets for less Under discriminating rates, the community which has no competition in transportation is thus penalized in two ways It must accept low prices (after freight is deducted) for the goods it sells and it must pay high prices for the goods it buys

Personal discrimination consists in charging different rates to different shippers for the same commodities between the same local points. So long as personal discrimination is practiced with the sole motive of obtaining the greatest profit for the railroad, it is no more and no less reprehensible than commodity or local discrimination Personal discrimination, however, is often practiced for other motives The officers of a railroad may be large stockholders in a particular corporation (often a coal company in the past) and so may grant lower rates to this company so it may improve its competitive position Bribery may be practiced by a particular shipper to secure rates favorable to himself Many motives, other than profit to the railroad, might be listed as the occasion for personal discrimination Where this kind of personal discrimination is practiced it will not appear openly in the published rate schedule In the past the favorite method was the granting of secret rebates to favored shippers A more subtle method is to base the discrimination upon what is apparently a commodity or local basis Thus if the favored shipper's commodity differs in any way from that of his competitor's, a lower freight rate may be placed on his particular type of commodity If he happens to be the only manufacturer in a particular town, then freight rates may be set lower on that commodity from that town than it is from the competitive towns

Passenger Fare Discrimination

The principles involved in passenger fare discrimination are quite similar to those involved in freight rate discrimination Considerably greater difficulty is found, however, in dividing passengers into groups which will correspond to the different elasticities of demand for transportation

Passenger fare discrimination is achieved by offering types of service which are somewhat different and then depending on the customers to group themselves On European railroads the fear which many people have that they will be considered *declassé* if they are seen traveling second class, enables the railroads to charge a great deal more for first-class accommodations than the difference in cost between rendering first- and second-class service The premium which another group places upon cushioned seats and somewhat more comfortable surroundings likewise enables the roads to charge a difference greater than the difference in cost for second-class coaches over third class

In the United States the discrimination occurs between coach and Pullman fares and between regular and excess-fare trains, Another form of it is found in the low rates charged on so-called excursion specials. It will be noticed that these trains are usually run at rather inconvenient hours and quite often require the passengers to sit up overnight on a day coach. This is done to discourage commercial travelers, and others who would normally be making the trip without special inducement, from taking advantage of the low fares on the excursion. Another form of discrimination is the difference charged for upper and lower berths on Pullmans. We may note that this difference does not take advantage of the full possibilities of the situation, since trains regularly leave the stations with all lowers filled but with perhaps only half of the upper berths occupied. Whether it would be advisable to drop the price of upper berths (to divert passengers from the coaches) or to raise the price of the lowers (to obtain more revenue from those who would pay the higher price and to induce the others to use upper berths) is a matter that could be determined only by experiment.

A very important form of passenger fare discrimination exists in the sale of low-priced weekly or monthly "commutation tickets" between suburban points and large cities. The elasticity of demand for this class of service is probably greater than for any other kind of passenger business. Low commuters' rates are an important element in inducing people to live in the suburbs and to ride the trains rather than to drive their own cars.

Public Policy on Rate Discrimination

In popular speech the term *discrimination* is practically synonomous with *unfairness,* and the charging of different rates to different customers is often condemned without further reflection. We cannot dismiss the question so easily in the case of the railroads, however. We must raise questions both as to what really does constitute a standard of "fairness" and as to what alternative methods of railroad rate making are practically expedient

Perfect competition would result in the entire absence of discrimination, and freight rates would differ only by the actual difference in costs Under perfect competition a ton of diamonds (if no armed guards were required) would pay the same freight rate as a ton of coal Even under perfect competition, if the volume of traffic is greater in one direction than in the opposite direction, the "return loads" will bear a lower freight rate The variable costs in this particular case would be only the difference in cost between hauling loaded and empty freight cars Perfect competition, however, is an impossibility in the field of transportation In the case of the railroads themselves we are confronted with monopoly, duopoly, or at most oligopoly, there are very few points in the country between which even four or five railroads compete Between a railroad and other forms of transportation the situation is one of monopolistic competition In unregulated rate making, therefore, the practical comparison is not between perfect competition and discrimination, but rather between a simple monopoly price and a discriminating monopoly price

As a matter of pure theory, it may interest the reader to know that Professor A C Pigou,[8] one of the most socially minded economists, believes that under certain circumstances perfect discrimination may be a fairer method of pricing than perfect competition He points out that perfect discrimination charges each buyer exactly the full amount that the product is worth to him individually Thus prices are charged in accord with the "ability to pay" rather than imposing a single price on all, regardless of difference in income or in desire for the product

In the case of the railroads, however, we return to the comparison of simple monopoly price with discriminating charges[9] There are some cases in which a railroad might not be built at all if it were not for the possibility of charging discriminating rates Consider, for example, an isolated point in northern Canada which is capable of producing both gold and lumber By charging a high rate on gold ore and mining machinery and a low rate on lumber there may be sufficient revenue to warrant building a railroad, but if the road were forced to charge the same rate on all freight, the revenue might not be large enough to induce its construction In cases like this, discrimination must be credited with a net gain for the community In view of the fact that goods continue to be shipped by rail, the services of the railroad presumably are worth at least the amount of the rates charged both to those who pay the high rates and to those who pay the low rates The building of the railroad thus represents a gain for them

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[8] Pigou, A C, *Economics of Welfare*, p 286 ff, The Macmillan Co, New York, 1933

In circumstances where some transportation service would be provided even if discrimination were not allowed, the comparison becomes more difficult If discriminating prices are higher than simple monopoly price for one group and lower than simple monopoly price for another, we must balance the losses to those who are charged the higher price against the gains to those who are charged the lower price On this point Joan Robinson says[10] "For instance, members of the more elastic market (for whom price is reduced) may be poorer than members of the less elastic markets, and we may consider a gain to poorer buyers more important than a loss to richer buyers" She says this, however, because she is thinking of discrimination as practiced directly in pricing consumers' goods In the field of transportation, the least elastic demand may happen to come from a poor farming community which is served by no other means of transport, and the most elastic demand may be that of a wealthy industrial city which is served by many railroads and other transport agencies

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[9] Cf Robinson, Joan, *Economics of Imperfect Competition*, Ch 16

[10] *Ibid*, p 204

If marginal costs are falling and if volume of traffic would be increased by discrimination, then there are some situations in which discriminating monopoly price would be lower than simple monopoly price in the less elastic as well as in the more elastic classes of traffic If these circumstances prevail, then all shippers will benefit under discriminating freight rates as against simple monopoly rates

Wasteful Use of Resources and the Need for Regulation

So far our discussion would indicate that unregulated rate discrimination is preferable to unregulated monopoly price in railroad rate making There are certain aspects of unregulated discrimination, however, which are distinctly harmful to the public interest Most important is the waste of the resources of production which is involved This waste occurs in two ways (1) through needless duplication of transportation facilities, (2) through poor economic organization of other productive activities that depend on transportation Where there is a large volume of traffic that is being charged high rates under discrimination, there will be an attractive opportunity for competition to enter the field The existing railroad may be physically capable of handling even the full volume of traffic that would be available at lower rates, and might very likely be able to do this at much lower cost than if the traffic were divided with another road In such a case, the duplication of facilities by a second railroad would be a sheer economic waste To prevent this type of waste, it is now provided by state and Federal laws that a new transportation line must secure a "certificate of convenience and necessity" from an appropriate commission before it may start to operate

Perhaps even more important than needless duplication is our second class of waste the improper organization of national resources that results from distorted rate structures This is caused both by commodity and by local discrimination, but the latter factor is probably the more important Regions which are "favored" by low freight rates will tend to carry production far beyond the point of increasing costs Other regions which may be equally, or even better, equipped by nature for the production of the same commodities may find that lower production costs are not sufficient to offset high discriminatory freight rates, with the result that they either do not produce at all or produce only for a local market In domestic trade, discriminating freight rates may prove as effective a barrier to realizing the advantages of specialization and division of labor as are high tariffs in international trade

Personal discrimination is generally condemned as leading to the development of a monopoly by the favored shipper The question then turns to whether monopoly or competition is more to be desired in the shipper's industry But even in an industry where monopoly is best suited to public policy, we shall perhaps be better served if the firm that achieves monopoly by forcing others out of business does so by the means of lower production costs rather than by freight rate favoritism

Rate Regulation

The unfairness, both real and imagined, of railroad rates charged during the era of cutthroat competition and monopolistic, discrimination soon led to demands for rate regulation The period from 1869 to 1887 was marked by the introduction of laws attempting to deal with this problem in many of the state legislatures An attack on the high and discriminatory rates on grains, livestock, and other farm produce constituted one of the chief elements in the Granger Movement in the Midwestern states

State legislation and the establishment of railroad commissions by the state to regulate rates could apply to rates within the state only At best the scope of this regulation was sharply limited and at its worst it complicated the problem Many state commissions were not above setting discriminating rates themselves which would operate to favor industries within the state as against those outside the state

The Interstate Commerce Commission was established by an Act of Congress in 1887 in an attempt to secure better practices in the setting of interstate rates At first there was considerable conflict between the Interstate Commerce Commission and the various state regulatory bodies and a series of adverse court decisions virtually emasculated its power Later court decisions and new legislation have clarified and extended the powers of the Commission until it now has jurisdiction over all interstate rates and may also order the changing of rates within a state where it can be shown that these rates have an effect upon interstate commerce At its inception the power of the Commission was confined to detecting and prosecuting cases of rate discrimination as defined in the original act, and even in this duty it was hampered by defects in the way in which the law was drawn Gradually the power of the commission has been extended until it now has power to determine both maximum and minimum rates in all cases affecting interstate commerce

In setting rates, the Commission is required by law to allow the railroads a rate of return of 5¾ per cent upon the "value" of their property The problem of determining the fair value of this property, as in the case of other utilities whose rates are regulated, has proved extremely difficult of solution [11]

After a long period spent in the correction of the more obvious abuses in railroad rate structures, the Commission is at present faced with the problem, not of preventing the railroads from earning too much, but of enabling them to earn enough income to survive. In doing this the Commission is itself forced to adopt, at least in part, the policy of "charging what the traffic will bear" (marginal revenue principle) and we find discrimination between different classes of traffic on that basis. Considerable attempt has been made to avoid discrimination between localities, although rates are by no means uniform throughout the country, particularly where waterways are competitive with railroad lines. The Commission can and does prevent the competitive undercutting of rates by different railroads. Probably no rate structure can ever be devised that will be entirely satisfactory either to the railroads or to all shippers and passengers. The best that can be hoped for is the attainment of the most effective compromise among the conflicting interests.

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[11] See Ch XXIII

In allowing the railroads to earn "a fair rate of return," the Commission, in setting rates, is really taking over one of the functions of management. However, we must not regard all of the disputes about rates between the Commission and the railroads as differences of opinion as to what constitutes good management. The recent passenger fare controversy is a good case in point. It is well known that the elasticity of demand for transportation may be different in different phases of the business cycle, thus causing higher or lower rates to yield the greater revenue according to circumstances. When the Commission proposed to drop the basic passenger fare from 3.6 cents to 2 cents per mile, the opposition of the Eastern railroads was probably motivated more by the fear that rates would not be revised upward when occasion warranted than by the immediate prospects of revenue at the 2-cent rate. After a trial of the 2-cent rate the Commission raised the rate to 2½ cents

Shortly after this, some of the roads voluntarily petitioned for a reduction to 2¼ cents, probably feeling that experience showed rates could be revised upward and that the immediate promise of revenue was better at the lower rate

Present Problems of the Railroads

Aside from rate structures, there are many difficulties which account for the unhappy situation in which most railroads find themselves today These may be reviewed briefly

Many railroads are much overcapitalized They are burdened with bond issues so great that it is impossible for them to earn interest upon them even with considerable increases in their present volume of traffic, and a great number of these roads are so situated that an increase in rates would reduce rather than increase their total revenue The only permanent solution to this problem is bankruptcy, which will wipe out these bond issues based on fictitious valuations There has been a reluctance to face the fact and accept this solution in the past because of the large amount of the securities of these roads which were held by banks and insurance companies, the evil day has been postponed by one breathing spell after another in the hope that some bit of luck would change the situation

By means of laws and trade union rules the railroads have been largely prevented from effecting economies in the use of labor Many of these restrictions were originally promulgated in the name of safety but they have not been sufficiently flexible to allow the roads to take full advantage of changes in motive power and methods of operation

There is much needless duplication of rail facilities between different points If this traffic were confined to a fewer number of roads running at or near capacity, many operating economies could be achieved For this reason the railroads have been requested to submit plans to the Interstate Commerce Commission for approval whereby the existing roads will be merged to form "systems" At least one serious obstacle to this plan presents itself If the stronger roads, in absorbing the weaker ones, are compelled to assume the present burden of fixed charges borne by these roads, this would in many cases more than overbalance the economies to be achieved by consolidation To date the Commission and the railroads have failed to agree on the plans for any important systems It would seem plausible that the ultimate goal should be the consolidation of all railroads into perhaps four or five systems, one for each region, since we have seen that competition here does not achieve the benefits that it brings in some other industries The problem of regulation would be no more difficult than it is at present, and probably would be simpler

Many roads are in possession of some branch and spur trackage which is being operated at a definite loss and should be abandoned Whenever such a move is proposed by the roads, the community affected usually protests loudly to the Commission It would seem that no community is entitled to demand railroad service which it is unable to support by a reasonable volume of traffic

Competition by trucks, busses, and airplanes has cut seriously into railroad traffic volume in recent years Insofar as these means of transportation are being subsidized through not being compelled to pay their fair share of the costs of roads, airports and air beacons, the railroads may have a legitimate ground for complaint It would seem to be an advisable policy for the long run to confine new subsidies for these other forms of transportation to fields where they can continue to give better and cheaper service, after subsidies are withdrawn, than the railroads now provide

Public Ownership of the Railroads

Many people have argued for and against government ownership and operation of the railroads The debate usually centers around the question of government *versus* private efficiency in operation Well-managed government projects and poorly managed private enterprises are offered as evidence by one side and well-managed private business and poorly managed government activities are offered as evidence by the other An objective answer to this question is almost impossible

It might be more to the point to assume, for the purposes of the argument, that governmental and private efficiency are equal, and then to ask to what extent government ownership and operation of the railroads would solve the problems outlined above In the first place, government ownership, in and of itself, would not solve the problem of overcapitalization If the government were to take over the roads and assume all existing financial obligations at face value, it would be in exactly the same position as the present owners, and losses would have to be paid out of taxes and the bonds redeemed from the same source Under no circumstances should the government pay more than the current market value of the outstanding securities Purchase at such a price would be equivalent to bankruptcy proceedings, which could achieve the same results and leave the roads in private hands It might be argued that the government would not overcapitalize in the future, whereas after reorganization private owners might be tempted to do so, however, the Securities and Exchange Commission now provides a means of preventing this

If we are to judge from the present trends of labor legislation, the government would probably be in no better position to economize in the use of labor than are the private owners at present In fact it is likely that the government would be even more hampered in such economies

The government could eliminate duplicating rail facilities but this would be perhaps no more effective than a single all-inclusive railroad system in private hands If it is stipulated that no employees are to be laid off, either the government or a private owner would be equally restricted in the economies to be achieved from such a reorganization As far as the elimination of nonpaying branch lines is concerned, there might be even more political pressure to prevent this than there is at present, when the decision lies with the Interstate Commerce Commission

Competition with trucks, busses, and airplanes would be the same under government ownership of railroads as under private ownership Any restrictions which might be placed on this competition could be enacted as well under one system as the other A plan might be advanced under which the government would own these other means of transportation as well and would then apportion service and traffic on the basis of general transportation efficiency Under such a plan government ownership of a transportation system of such magnitude might be better than private ownership because motor car manufacturers, airplane manufacturers, and the makers of railroad equipment would each be tremendously interested in having the system use as great an amount of his type of equipment as possible, to the exclusion of the others If the owners of such a private system were financially involved in any of these manufacturing companies, such companies might be unfairly favored How much political favoritism of the same type there would be is, of course, problematical

In the determination of rate structures (except for rates within the states which do not affect interstate commerce), the government has nearly as much authority at present under the Commerce Commission as it would have if it owned the

CHAPTER XVIII

General Equilibrium Theory Under Perfect Competition

THE concept of general equilibrium varies among different economists One concept maintains that general equilibrium is the *static state,* a condition in which all prices are long-run equilibrium prices, each person is spending his income in the manner which yields him the greatest satisfaction, each firm and each industry is in a state of equilibrium with respect both to prices and output, and the supply and demand for factors of production are equated at equilibrium prices In short, general equilibrium is a condition in which there is no economic motive for change Changes may occur, however, due to changes in crop yields or other natural causes The holders of this view do not believe that the static state ever exists However, they do view the general movements of the economic system as a series of attempts to attain such an equilibrium condition, or as movements from one static state to another, which is never quite attained because new disturbances to equilibrium occur before full adjustment is ever achieved, or because of economic "friction," which permanently delays the adjustment until a new state of equilibrium is required by new circumstances

The *circular flow,* Professor Schumpeter's creation,[1] is conceived of as a sort of constantly moving equilibrium in which people can take past experience as a guide for future conduct, and rules of thumb apply The only economic factor which could disturb this situation is "innovation" Professor Schumpeter allows for quantitative changes within the circular flow, but they must be within the range where the old rules of economic conduct hold

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[1] See Ch XXXV on 'Business Cycles', also *The Theory of Economic Development,* Harvard University Press, 1934

Frank H Knight would agree partly with Professor Schumpeter Knight's idea of a state of general equilibrium is that of a situation in which all forecasting is perfect, so that instantaneous adjustment could place the system in equilibrium with anticipated conditions which would actually be fulfilled

These statements do not represent fully the different theories of general equilibrium prevailing, rather they are brief descriptions of "imaginary states" under which the various theories of general equilibrium might operate perfectly

Professor Wicksell also assumes that competition is both pure and perfect and that output is produced under conditions of constant cost[2] In order that there will be no residual income (profits) to be accounted for, he makes the additional assumption that any one of the factors of production, or rather the owner of the factor—the landlord, the laborer, or the capitalist—may also act as manager of the business and hire the other factors Then in order for the firm and for the industry to be in equilibrium, average total unit cost must be at a minimum, and at this minimum the cost must equal the selling price

The Production Function

Wicksell then stated his condition of equilibrium as a mathematical equation which we can simplify by stating it in words:

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[2] Constant cost is achieved by adding to or subtracting from the industry firms operating at minimum cost, which is uniform for all firms

$$\left.\begin{array}{l}\text{Total receipts from}\\ \text{sale of the product}\end{array}\right\}\text{ is equal to }\left\{\begin{array}{l}\text{Total cost}\\ \text{of production}\end{array}\right.$$

$$\left.\begin{array}{l}\text{Total cost of}\\ \text{production}\end{array}\right\}\text{ is equal to }\left\{\begin{array}{l}\text{Quantity of factor A times the price of A, plus}\\ \text{quantity of factor B times the price of B, plus}\\ \text{quantity of factor C times the price of C}\end{array}\right.$$

and so on for as many factors as are employed in making the product It also follows from the condition of minimum cost and uniform cost that any increase in the use of all the factors combined will result in the same proportionate increase in the product Equilibrium among industries will be fulfilled by the condition that all total receipts of all products must be proportional to the amounts of the factors used[3]

Most people who explain a general equilibrium theory start with the idea that consumers' choices determine relative prices and quantities of goods sold A careful examination of the above propositions or of actual conditions will convince the reader that every price is related to every other price in the whole economic system either directly or indirectly Thus we are acting under a system of mutually interrelated prices We might just as well say that prices depended upon consumers' income, which in turn was derived from the prices and quantities of the factors of production

We have made a fairly detailed study of partial or temporary equilibrium of the prices of commodities It may help us to repeat in somewhat simpler language the conditions which tend to regulate the prices of the factors of production

In one sense there is no need for making a special problem of these prices They are all determined by supply and demand in the same way as the prices of commodities However, there are certain peculiarities in both the supply of, and demand for, the factors of production which are different from the supply and demand for commodities, which merit the treatment of the prices of the factors of production as special price problems

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[3] Mathematically, we may say that we have a set of simultaneous equations, one for each industry

In the first place, the demand for the factors of production is a *derived* demand The owners of a business are not ordinarily hiring laborers to satisfy their own personal wants What they are doing is hiring laborers to make goods which will satisfy some want of the public The demand for labor is thus derived from the demand for goods If the public's demand for a certain type of goods increases, then the demand for labor by the firm which makes those goods will increase The same thing is true of the services of management, whether performed by a hired manager or by the owner of a firm The public does not demand the services of the manager directly What it demands is the product which the manager's services help to produce

Another problem that is common to any price analysis will occupy our attention more here than in the previous chapters This is the problem of mutual interdependence of prices and, in this case, the mutual interdependence of the prices of the various factors of production We cannot consider the price of any one factor as being uniquely determined, independent of the other factors This does not mean that the price of any factor is indeterminate or that the problem is insoluble What it does mean is that our problem is not that of a simple single cause-and-effect relation, but rather one of a resultant of forces

Conditions of Equilibrium of Prices of the Factors of Production

We may best approach this problem by first attempting to discover the necessary conditions under which the prices of the various factors of production will be in equilibrium To simplify the problem, we shall start by making certain assumptions which will seldom be fulfilled by the conditions of the actual economic world When we have discovered the principles involved, we will remove these assumptions one by one (in this and the following chapters) in order to explain what goes on in the actual world when these assumptions are not fulfilled

We shall assume, (1) that the tastes for the various commodities which the public buys are known and will not change, (2) that there are no new inventions and no improvements in the knowledge of methods of production (this assumption implies that the only changes in productive technique which take place will be changes in the amount of the factors of production used or in the proportion in which they are used), (3) that the units of each factor of production will be homogeneous, so that there is no difference in productive ability between different units of the same factor, (4) that there is perfect competition both on the supply and on the demand side of the markets for the factors of production, (5) that there is perfect mobility of all factors of production

Under these assumptions, the first condition of equilibrium would be that all units of a factor would have to be paid the same price Thus, if some laborers offered to work for less than others, any employer could gain by discharging the higher-priced laborers and hiring the cheaper ones, and the labor market would not be in equilibrium Similarly, if he could borrow money capital at a lower rate of interest than he is now paying, he could gain by borrowing to pay off the old loans, and the capital market would not be in equilibrium

The second condition of equilibrium is that the prices of the various factors of production must be in proportion to their marginal products The *marginal product* of a factor of production may be defined as *the net amount added to total revenue by the last unit of the factor employed*[4] For example, if a firm hires one more worker and his employment results in an addition to the daily output of the firm of five units of the product, and the sale of these units adds \$5 00 to total revenue, then the marginal product of labor is \$5 00

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[4] Note that this marginal revenue product will be different, depending on whether the firm is operating under conditions of pure or monopolistic competition

The statement of the second condition of equilibrium then becomes

$$\frac{\text{Marginal Product of Factor } A}{\text{Price of } A}$$

must equal

$$\frac{\text{Marginal Product of } B}{\text{Price of } B}$$

must equal

$$\frac{\text{Marginal Product of } C}{\text{Price of } C}$$

and so on, for as many factors as there are If it should so happen that these ratios are not equal, for example, if

$$\frac{\text{Marginal Product of } A}{\text{Price of } A}$$

is greater than

$$\frac{\text{Marginal Product of } B}{\text{Price of } B}$$

then it will pay the firm to use more of factor *A* and less of factor *B,* and this will not be a state of equilibrium A numerical example may help to illustrate this principle Suppose that the wages of a certain kind of labor are \$10 00 per day, and that the marginal product of this kind of labor is \$30 00 per day At the same time, suppose that the machine cost of a certain type of machine is \$20 00 per day and that the marginal product of the machine is \$40 00 per day. Our ratios would then stand

$$\begin{array}{ccc} \textit{Labor} & & \textit{Machines} \\ \dfrac{\text{Marginal Product \$30 00}}{\text{Price \$10 00}} & > & \dfrac{\text{Marginal Product \$40 00}}{\text{Price \$20 00}} \end{array}$$

Under these circumstances, each dollar spent for labor adds \$3 00 to total revenue, whereas each dollar spent for machines adds only \$2 00 (the marginal product of labor is in the ratio of 3 1 to its price, the marginal product of machines is in the ratio of 2 1 to its price) It would pay us more to add labor rather than to add machines If the price does not change, we would add more labor alone until the marginal product was driven down to \$20 00 The equation would then be

$$\begin{array}{ccc} \textit{Labor} & & \textit{Machines} \\ \dfrac{\text{Marginal Product } \$20\ 00}{\text{Price } \$10\ 00} & = & \dfrac{\text{Marginal Product } \$40\ 00}{\text{Price } \$20\ 00} \end{array}$$

which satisfies the second condition of equilibrium All of this is merely another way of saying that a necessary condition of equilibrium is that the firm must be using the *least cost combination* of factors of production If, at any time, the conditions are such that a firm could gain by employing more labor and less capital,[5] or more capital and less labor, such a firm is not in equilibrium in respect to its demand for the factors of production This second condition is also known as "the principle of substitution " ②

The third condition of equilibrium is an extension of the second In equilibrium, the prices of each of the factors of production must be equal to their marginal products If the second condition were fulfilled but not the third (for example, if the prices of all the factors are proportional to their marginal products, but the marginal productivity of each factor is greater than its price), then it will pay the firm to vary the amount of all the factors employed If the marginal product of each factor is greater than its price (as is the case in the numerical equation above), then the addition to total revenue would be greater than the addition to total cost if more of each factor were employed Conversely, if the marginal product of each factor is less than its price, then the subtraction from total revenue would be less than the subtraction from total cost if less of each factor were employed This third condition is merely another way of saying that the *output* of the firm must be in equilibrium, that is, that the firm is already so adjusted that it could not profit by expanding or contracting its output by employing more or less of all factors of production Thus, the second condition refers to the *proportion* in which the factors are used, the third condition refers to the *amount* of all of them which is used

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[5] Note that money capital is a homogeneous factor, while capital goods are not homogeneous as a class but are only homogeneous within various subgroups (for example, particular kinds of machines or tools) The implication of this will be considered in Ch XXIII on "Interest "

[The fourth condition of equilibrium is that all of the units of each factor of production whose supply price is equal to or lower than the prevailing market price of the factor must be employed] Thus, if there are unemployed workmen who desire work and are unable to find it, they may offer their services to the employers at less than the prevailing rate of wages The employers will then have a motive either to discharge their present working force and hire the workers who will work for less or to insist that the present force work for lower wages In either event, the previously prevailing rate of wages will not have been an equilibrium rate Similarly, if loanable funds are unemployed, the owners—rather than receive no interest at all—will loan them at a lower rate of interest, thus forcing down the previously prevailing interest rate Some people may prefer to spend their money on consumers' goods rather than loan their funds at the lower rate of interest, this will remove some of the supply of loanable funds from the market

Process by Which Equilibrium Is Attained

We are now equipped with a knowledge of the four conditions of equilibrium for the prices of the factors of production under the five assumptions we have made A little further analysis will show us that we are also equipped with a knowledge of the process by which this equilibrium is reached

The first condition—uniform price for all units of a factor—will tend to be fulfilled by the action of competition Competition among workers will tend to depress wages, and competition among employers to obtain workers will tend to force wages up, until a true market price is established at which demand and supply will be equal Similarly, competition among lenders on the one side and borrowers on the other side will establish a single market rate of interest The same holds true for all other factors of production

Elasticity of Substitution

The second condition—factor prices proportional to marginal products—will tend to be fulfilled by the process of substituting one factor for another whenever their prices happen to be disproportional to their marginal products Whenever labor is cheaper than capital in proportion to the efficiency of each in production, it will pay employers to use more labor and less capital, and they will tend to adopt productive methods that will take advantage of this situation Thus, if the rate of wages is very low and the rate of interest is extremely high, contractors for excavating work will tend to use laborers with picks and shovels for all possible jobs, whereas, if wages are high and interest rates low, there will be a great many jobs on which the lowest cost can be achieved by using ditch-digging machines and steam shovels, with fewer laborers

Note that the fulfillment of the second condition can be attained either by a change in the prices of the factors or by a change in their marginal productivity, or by both Thus, when labor is cheaper relatively to its efficiency than capital, the attempt of a large number of employers to use more labor results in a competition among them which tends to raise the price of labor. At the start of this process (substitution of labor for capital), employers will first take advantage of this cheap labor situation by putting the added labor to those uses in which its marginal productivity is the highest. In other words, labor will first be substituted for machines in those uses in which the labor cost is much less than the machine cost for doing the same job. As more and more labor is used, it will have to be put to work in jobs where the cost advantage of the labor method over the machine method is less and less. Thus the marginal productivity of labor will be declining relatively to the marginal productivity of capital as the substitution of labor for capital is pushed into those uses where machinery has a greater technical advantage over labor, that is, in those tasks where it requires a greater number of cheap laborers to take the place of a high-priced machine.

But, as less and less capital is being used, its price will tend to decline. At the same time, the high-priced capital will tend to be withdrawn first from those uses in which its marginal productivity is least. Thus, the capital which is retained will be retained in those uses in which its marginal productivity is greatest, and the marginal productivity of the capital which is still used will have increased.

We can thus see that a readjustment to equilibrium conditions when the prices of factors of production are out of proportion to their marginal products is accomplished by a rise in the price of the *underpriced factor* and a *decrease* in its marginal product as successive units are put to less productive uses. Equilibrium may also be attained by a *decline* in the price of the *overpriced factor* and an *increase* in the marginal product of those units of the factor which are retained, since the factor will be withdrawn first from its least productive uses.

The governing principle in all this readjustment is the *elasticity of substitution.* The elasticity of substitution is a measure of the readiness to substitute one factor of production for another in response to a change in their relative prices. If the same amount of labor would always be required to make a unit of a product, regardless of the method of production employed, the elasticity of substitution of capital for labor would be zero. If one unit of labor would always yield the same product as one unit of capital (regardless of the proportions in which they were used), then the elasticity of substitution of either factor for the other would be infinite, that is, with the slightest drop in the price of capital while the price of labor remained the same, all capital and no labor would be used in production, and vice versa. Obviously, neither zero nor infinite elasticity of substitution is a possible condition in the actual world. The extent to which capital will be substituted for labor, or labor for capital, in any productive process will depend both on the relative efficiency of the factors and on the relative change in their prices.

If a state of equilibrium has previously been in existence, it may be disrupted by a change in the supply of any of the factors of production (for instance, an increase or decrease in the supply of capital, resulting in the offering of the same amount of capital at lower or higher interest rates). The equilibrium of proportionality between prices and marginal products might be altered by a change in the productivity of any factor. Such a change would most likely be occasioned by the invention of a new machine or by the discovery of a new process (conditions ruled out by our second assumption, but which we shall have to consider later). Regardless of its source, the disturbance will have given rise to a new set of data with which adjustments will have to conform to reestablish equilibrium under the second condition A new equilibrium will therefore take the place of the old, based upon the new conditions of supply of the factors of production The prices of the factors may or may not be the same in the new equilibrium as in the old, nor need the marginal products be the same as they were before It is only necessary that the new prices be proportional to the new marginal products to fulfill the second condition of equilibrium again

If it should happen that optimum output for a firm should be the same after the disturbance as before, some time might be required for the adjustment to take place, particularly if the new adjustment to the second condition of equilibrium required the substitution of labor for capital Insofar as a firm's capital is invested in the form of fixed capital goods (such as plant and machinery), it will not be possible immediately to reduce the amount of capital used If established firms do not make this adjustment, new firms can start up, using the better proportions of labor and capital, and undersell the old firms In this case, the old firms will have to "write off" a part of their capital investment as a loss In no event will they replace the same amount of fixed capital as it wears out If the old firms are able to stand this loss, they will carry on under the same ownership If not, they will go bankrupt, and whoever buys the business at the bankruptcy sale will only pay such a price for it as is justified by the new conditions

However, if the new optimum output for a firm is larger than the old, adjustment will be much more rapid Even where a heavy fixed investment exists, it will be possible to increase the proportion of labor to capital by working longer hours or double shifts The additional output can and will be produced by methods which use more labor and relatively less capital[6]

Where the adjustment is in the other direction (requiring the use of more capital and less labor), it can be made just as rapidly as the capital goods can be manufactured and the new methods can be installed in the plant

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[6] An absolute increase in the amount of labor used with a fixed amount (or a smaller proportionate increase in amount) of capital means a substitution of labor for capital

In any event, the most rapid adjustment to the new conditions will be likely to take place among the new firms which start up Any new firm will be in a position to take advantage of the new relations between the prices and the productivities of the factors Furthermore, if it so happens that labor is cheaper relatively to its efficiency than is capital, new firms will be most encouraged to start up in those industries making those products which require the greatest proportionate amount of labor and the least amount of capital, and vice versa

The third condition of equilibrium—that the price of each factor of production must be equal to its marginal product—will be fulfilled by the combined effect of the profit search of firms and of perfect competition (which we have thus far assumed) If in any industry the factors are being paid in *proportion* to their marginal products, but the prices of each are *less* than the marginal products, this is just another way of saying that the firms could increase their profits by hiring more of the factors, and thus expanding output Expansion of output, whether by old firms or new, will do two things it will tend to raise the price of all the factors of production and (since we assume the demand curve for the product does not change) the increased output will have to be sold for a lower price Such a lower price for the product will mean a decreased value of the new marginal units which the factors of production are making, in other words, the marginal product of each factor will have diminished This process will continue until the marginal products are equal to the prices of the factors

If in any industry the prices of the factors are greater than their marginal products, the industry will be operating at a loss or, at least, at less than maximum profits, and therefore there will be a tendency to reduce output The decreased demand for the factors of production will tend to lower their prices, and the decreased supply of the product will tend to increase its price until the prices and the marginal products of the factors of production are again equal

In actual business experience we will find that full equilibrium is seldom if ever attained Thus, the demand for different products will change, and before equilibrium under the new situation can be attained, demand may change again One invention will alter the relative productivity of labor and capital, and before full adjustment can be made, another invention will come on the scene But we must not ignore the fact that the intervals between such changes are only explainable as an effort of our economic system to readjust itself to a new set of equilibrium conditions In the subsequent chapters, we shall discover how monopoly and monopolistic competition both in the markets for goods and in the markets for the factors of production not only tend to delay the attainment of equilibrium, but also result in the final equilibrium solution being different from what it would have been had pure competition prevailed

Before going any further we should understand clearly that the marginal productivity theory is not a justification of the distribution of income as it exists today, nor is it a justification of the income which any individual receives It is simply an explanation of the way in which our economic system works However much we may disapprove of the results which are attained, we must have a thorough understanding of the functional nature of the process of distribution Otherwise, any attempt to reform the system will be likely to give rise to evils and maladjustments which are worse than those that the reform was intended to correct[7] Unfortunate as it may be, an ethical point of view is no substitute for intelligence in this modern world of ours

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[7] The Miller-Tydings Resale Price Maintenance Act apparently was designed to inhibit pure competition and to encourage monopolistic competition

Within each firm and within each industry, marginal productivity is the explanation of the demand for the factors of production The supply of factors of production to any firm or to any industry is explained in terms of opportunity cost (the earnings which the units of the factors could make in other firms or industries) The following chapters deal mainly with conditions of supply and demand which are peculiar to individual factors of production and which lead to some modifications in the application of the principles The basic principles of marginal productivity and opportunity cost must nevertheless be kept constantly in mind throughout the discussion

Criticism of the General Equilibrium Theory under Perfect Competition

At its best, the general equilibrium theory as outlined here gives us a picture of what would be required to attain complete equilibrium of our economic system It also gives us a standard by which to determine whether or not particular changes are working in the direction of this kind of equilibrium Nevertheless, even the most enthusiastic contributors to the theory do not claim that it represents an explanation of the real world Rather, it is a schematic point of departure from which, by removing assumptions, actual problems can be approached

Its worst features are the number of assumptions required which are contrary to actual conditions and the fact that many of these assumptions cannot be removed without in some respects detracting from the theory itself Many of these assumptions are made simply with the intent to reduce the problem to a set of simultaneous equations from which the mathematical economist can derive useful mental exercise When the theory reaches this form, it does not mean much more than the simple statement that all prices of factors of production and goods are mutually interrelated, that a shift of demand will result in a higher price for the product whose demand has increased and a lower price for the product whose demand has decreased, and that, given sufficient time, with no other disturbances intervening, a shift in the factors of production will restore these prices to a new equilibrium ratio based upon the change in demand Some of the most unrealistic assumptions are.

1 Pure competition which is also perfect
2 Constant cost
3 No decreasing costs
4 Standardized products for individual industries

If the production function even closely approached reality, there would be no need for the separate chapters on wages, rent, interest, and profits which follow

Most of the special rules which we have to develop when we attack these separate questions by particular equilibrium analysis are the result of situations of monopoly, monopolistic competition, oligopoly, monopsony, and oligopsony If it can be demonstrated that monopolistic competition is a permanent institution, then the entire set of assumptions of general equilibrium theory under pure and perfect competition would have to be drastically revised

CHAPTER XIX

Wages[1]

THE FIRST problem which confronts us in dealing with the problems of wages is that labor in general is too broad a category to be considered as a single factor of production So divergent are the different kinds of skills possessed by different groups of workmen that our third assumption of the preceding chapter is not fulfilled—labor in general is not a homogeneous factor, and there are differences in productive ability between different units of it

Differences in Skills

So far as differences in kinds of skills are concerned, this problem can be easily met by considering each of the different groups of laborers as a separate factor of production[2] Our second condition of equilibrium—that the prices of the different factors of production must be proportional to their marginal products—will then apply as between the different groups of labor exactly as it did between labor and capital For example, carpenters and bricklayers are different factors of production for the purpose of building houses If the bricklayers' union demands an increase in wages while the wages of carpenters remain the same, then the proportion between the marginal products and wages of brick laying and of carpenter work will have been disturbed, and the law of substitution will start to work In simpler language, the cost of a brick house will have risen relatively compared to the cost of a wooden house, and people will tend to substitute lumber for brick in building houses If the bricklayers' union sticks to its price, bricklaying will be confined to those uses in which the marginal product of bricklaying is equal to its price Bricks will be used in most houses only for chimneys, where their advantage over wood is unquestioned, and only those few houses will be built entirely of brick whose prospective owners consider that the advantage of a brick house over a wooden house merits paying the new, higher price for brick The net result is, of course, that some bricklayers will be unemployed We will reserve a full discussion of this sort of unemployment until later What we have established here is that different kinds of skilled labor may be treated as different factors of production and that the law of substitution works between them

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[1] See Hicks, J R , *Theory of Wages* The Macmillan Co , 1933, and Taussig, F W , *Principles of Economics,* Ch 47, The Macmillan Co , New York, 1921

[2] Or, should we say that the sale of skills is a sale of differentiated products under monopolistic competition or monopoly

Differences in Efficiency[3]

Another difficulty with which we are confronted is that even within the same trade or craft the workers may be of considerably different efficiency The principle of substitution will apply between individual workers as well as between groups If wages are the same for all individuals in a trade, employers will attempt to obtain and keep the more efficient men and to discharge or avoid hiring the less efficient If the less efficient men who find themselves unemployed offer to work for lower wages, some employers may find it to their advantage to hire these men rather than the better workmen, when the difference in wages is sufficient to compensate for the difference in efficiency

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[3] Differences in efficiency are closer to conditions of monopolistic competition than are differences in skills The latter may be marketed under monopoly by trade unions

In occupations that are more or less standardized, there is less discrepancy between wages and marginal products due to differences in individual efficiency than might be supposed offhand In the actual world, while there may be a marked difference in efficiency between superior workmen and average workmen, or between average workmen and substandard workmen, there is usually in every trade a sufficiently large number of average workmen whose efficiency differs so little from one to another that a substantially accurate adjustment of wages to marginal products may be attained by paying the entire average group the same wage

The payment of piecework wages will also tend to narrow somewhat the discrepancy between wages and marginal products due to individual differences in efficiency Piece wages, however, would compensate completely for all differences in efficiency only in the imaginary case where labor cost was the only cost involved in making a product For example, if an average worker using a machine can turn out four times as much product as a substandard worker, then, even though both were paid the same rate per piece, the *machine cost* of using substandard workers would be four times that of using average workers That is, four substandard workers would need four machines to turn out the same amount of product as one average worker with one machine To allow for this difference so that wages and marginal products would be equal, it would be necessary to pay the substandard workers a *lower price per piece* than the average workers In some of the complicated wage systems in use today this is actually attempted But rather than to attempt to explain to the workmen the justification for a differential piece rate, as given above, many firms adopt the simpler expedient of not hiring the substandard workmen if they know them to be substandard and of discharging them as soon as their inefficiency is discovered As substandard workmen's lack of efficiency tends to become known to the various employers, they will be the last to be hired when business is picking up and the first to be fired when business slacks off again If regularity of employment may be considered as one form of compensation, then substandard workers are indeed receiving less than average workers

The superior efficiency of super-standard workmen may be compensated for, at least in part, by some system of bonuses paid by a firm The adjustment may also take place by a specialization between firms as to the workmen they hire Thus, some firms may so plan their productive processes as to take full advantage of the superior men's greater efficiency and offer a higher wage to attract them A motor car assembly line manned entirely by superior workmen may be able to turn out enough more cars per day to justify paying the men a wage much higher than the average, and some manufacturers may adopt this policy On the other hand, no manufacturer could gain by mixing superior and average men on the same assembly line, as the slower pace of the average men would hold back their faster fellow-workers Consequently, it will pay some other manufacturers to standardize on average men, paying them the average wage

For the most part, however, superior men will have to depend on individual bargaining with their employers to secure a better-than-average wage to compensate for their greater efficiency The absolute maximum which a superior worker can obtain over a long period of time is the full value of his services to the employer who is best situated to take advantage of his superior efficiency The minimum wage which he can be forced to accept is the wage which the next most eager employer would be willing to pay for his services Between these two limits there will be a "range of indeterminateness," and the actual wage paid will be a result of the relative bargaining abilities of the employer and the employee In the case of extremely exceptional individuals, such a "range of indeterminateness" may be fairly wide, particularly if there is only one or a very few employers who are in a position to take advantage of their superior abilities Thus we used to have the annual controversy in the sport pages in the days of Babe Ruth's glory as to whether he was worth more or less than the salary which the New York Yankees offered him in his new contract each year

Exploitation of Labor

However, the Babe Ruths, the Greta Garbos, and the Alfred Sloans are so few in number that, for the purposes of an elementary text, we can safely leave them to worry for themselves as to whether they are being paid wages that represent the full value of their services, and concentrate our attention upon the vast majority of workmen who make up the ordinary supply of labor Nevertheless, there is one rather curious fact that should not escape our attention If we define "exploitation of labor" as the paying of wages which are less than the full value of a workman to the employer, then exploitation is much more apt to exist in the case of the highest-paid individuals than in the case of the lowest This is simply due to the fact that in the case of these exceptional individuals there is usually only one employer who is in a position to take full advantage of their exceptional ability And even though the best-situated employer is paying the individual less than he is worth to the firm, he may be paying him more than what his value would be to the next best-situated employer Thus, in the case of Babe Ruth, even though there had been no league agreement not to bid competitively for players, the Yankees were the only club in the league with a stadium large enough and located in a city large enough to take full advantage of the Babe's exceptional ability to draw the customers through the turnstiles Competitive bidding might have saved Ruth from having to accept his $80,000 00 pittance, but competitive bidding alone could never have forced the Yankees to pay him the full value of his services to them

At the other extreme, take the case of the village half-wit whom I may hire to work in my garden at 15c an hour If I should hire him, I find that I have to spend so much time and energy supervising his efforts that I prefer to do the work myself Meantime, my neighbors (who do hire him) are always in doubt as to whether he is worth what little they have to pay him His wages are low, not because he is being exploited, but because his productivity is so miserably low

Exploitation is not likely to persist where there is a large group of similarly skilled workmen, because it would increase profits of employers to hire more of these "exploited" men, and, in the competitive effort to hire more, they would tend to drive wages up to the marginal product This is the case in many of the "sweated" industries While it would be idle to deny that exploitation often does exist in these trades (manufacture of women's cheap dresses, artificial flowers, and so on), we should not ignore the fact that in a great many cases competition in the use of cheap labor will have driven the price of the product down to so low a point that the value of a worker's product will not exceed his wages, even though those wages may be deplorably low

Economic Effects of Minimum Wage Laws

While we are on the subject, it might be interesting to observe the economic effects of a legally imposed minimum wage in the above circumstances If no exploitation exists, such a minimum wage is bound to result in less employment, except where monopsonistic exploitation exists, since the output of the industry will have to be restricted to a point where the higher price to be obtained for a smaller amount of the product will be sufficient to compensate for the higher labor cost imposed by the minimum wage The fact that some people are working for less than a proposed minimum wage is evidence that they are willing to do so rather than remain unemployed Consequently, when the minimum wage is imposed, they will be tempted to conspire with their employers to conceal the fact that they are being paid less than the minimum, rather than face unemployment, and the law will be expensive and difficult to enforce On the other hand, there may be certain classes of people for whom we decide that it is not socially desirable that they be employed If this is the case, the desired end can be attained better by direct legislation to that effect, that is, by child labor laws, maximum hours for female workers, compulsory medical examinations for workers in hazardous occupations, and so forth Such legislation, besides achieving the direct end stated by the law, will also tend to raise wages in the trades from which the undesirable labor is withdrawn by decreasing the supply of labor available Then, too, such legislation is ordinarily easier to enforce than minimum wage laws

Our zeal for social reform should not blind us to the social cost involved in either minimum wages or specific prohibitions of certain kinds of labor Such cost can be measured in terms of fewer goods and in terms of the higher prices which the public must now pay In addition, it may be necessary for society to provide through doles, mothers' pensions, or other forms of poor relief, for the people made unemployed by social legislation On the other hand, in the case of child labor, at least, it may be that if their minds and bodies are saved from being stunted by too early employment, their increased productivity at maturity may more than compensate for the products they might have made as children Furthermore, insofar as more children are educated, it will tend to decrease the relative advantage enjoyed by the members of the higher-trained occupations. Thus, there will be, for example, more people qualified as business executives and as engineers, so that the wages in those occupations will tend to be less than they would have been in the absence of such legislation. This will work to the disadvantage of those people who would have attained to the skilled groups in the absence of the legislation, but it will be to the advantage of the rest of the population in that they can obain these skilled services cheaper.

The Supply of Labor

We must now turn our attention to the supply of labor. Here we have no such thing as a definite cost of production of labor governing its supply as we did in the case of the supply of goods. While the rate of wages undoubtedly does have some influence upon the numbers of the population, there are so many other causes at work (sanitation, medical care of infants, accident prevention, birth control, social attitude toward marriage and large families, and so on) that the rate of wages as a single cause becomes of so little importance that we can leave the question to the student of population problems. For our purposes, we may take the numbers of potential workers at any given time as a thing for granted and work from that point.

We may define the supply of labor as the schedule of amounts of work (units of labor) that workers are willing to offer for sale at each possible price. This supply is a function mainly of two variables—the number of workers that are able and willing to work at each possible price, and the number of hours that each one is able and willing to work at each price.

If no worker had any savings and it was simply a question of work or starve, and if under these circumstances all employers conspired together to try to drive wages down to the lowest possible level, there is little doubt that a great majority of workers would be willing to work for a much lower wage than they are now receiving. Considered in these terms, the supply of all labor in general is seen to be extremely inelastic For a very short period (under these circumstances) the amount of labor offered for sale at a lower price might actually be greater than the amount offered at a higher price That is, workers who have been accustomed to the products included in a higher standard of living, rather than give them up, might make the first adjustment to a lower wage by attempting to work a greater number of hours But they would very shortly discover that at least some amount of leisure was worth more to them than the products they would have to give up, and they would adjust themselves to a lower standard of living Furthermore, no matter how willing they might be, there will be a tendency for the greater number of hours worked to detract from their efficiency, so that a larger number of hours is counteracted by a smaller product per hour It seems safe to say that, with a given population, the supply of all labor in general will not be very elastic over a long period of time

If the supply of all labor is inelastic, then the demand for labor will be more important than the supply in determining its price However, even the absence of trade-unions need not be an occasion for the reader to worry about such a conspiracy among employers as was imagined above If such a conspiracy were formed, as wages were driven below the marginal products of labor, a profitable opportunity would be presented for certain laborers to quit the ranks of labor and become employers (provided they could obtain capital), thus breaking the monopoly power of the conspiracy Furthermore, as wages were driven down, it would pay any employer to start substituting labor for capital and to employ more laborers by paying higher wages to get them away from the other employers Thus, each and every employer in the conspiracy would have the strongest of motives to violate his agreement, and the conspiracy would fall of its own weight

However, the wages that are being paid today are in fact determined not so much by the demand for and the supply of labor in general as by the demand for and the supply of labor in particular occupations and particular industries In this connection, the general demand for labor is important only insofar as it affects the supply available for any one occupation or any one industry Thus an increase in the demand for structural ironworkers, by offering either higher wages, steadier employment, or both, may induce more youths to enter that occupation rather than learn the plumbing trade A general increase in the demand for unskilled and semiskilled labor (such as occurred during the war) may, if the wages offered are high enough, induce many young men to go to work at these jobs rather than to spend their time in school learning to be pharmacists and accountants, thus decreasing what would otherwise have been the supply of labor in these skilled occupations As soon as all labor is employed for the maximum number of hours they are willing to work, the supply becomes completely inelastic

Causes of Differences in Wages

If all men were of identically the same mental and physical abilities in all respects, if all occupations were equally easy to enter, and if the conditions of work (other than wages) in all types of occupations were equally attractive or equally distasteful to all people, then, in a perfectly competitive labor market, the wages of all classes of labor would tend to be equal Business executives and bricklayers, geologists and garbagemen, college presidents and dogcatchers would all be receiving the same salaries The income they received from interest on investments might be different, but the wages received for work performed would be the same for all of them However, none of the "ifs" above are fulfilled in actual life, consequently the relative scarcity of men in certain occupations serves to keep their marginal productivity so high that they can command a higher wage than those in other occupations in which the supply is greater relatively to the demand We shall examine for a moment some of the conditions that give rise to this scarcity

(1) In the first place all men do not have equal educational opportunities To make such educational opportunities absolutely equal, not only would tuition, board, and room-rent have to be free through high school, college, and graduate, technical, or professional school, but also children of poorer parents would have to be freed from the necessity of going to work at an early age to help augment the meager family income Other things being equal, the relative scarcity of men who are able to obtain an advanced education will tend to make the earnings in occupations requiring higher education higher than in those requiring less training There is no guarantee, however, that this will happen at any one time in any one profession If all, or a vast majority, of college graduates decide to become lawyers, the average lawyer might be earning $10 00 a week while the average carpenter was earning $40 00

(2) The second element that contributes to the relative scarcity of men available for certain types of occupations is the unequal natural endowment of different individuals with different skills This is a scarcity which even completely free education would not overcome Thus, even of the numbers who graduate from medical schools today, comparatively few possess the combination of mental ability and manual dexterity necessary to a really first-rate surgeon By allowing a free education to all members of the population who possess these peculiar natural abilities, the number of first-rate surgeons would certainly be increased somewhat, and earnings would tend to decline However, so long as the demand for surgeons' services continues to be what it is at present, or increases, it may be doubted whether education could increase the supply of surgeons sufficiently to reduce their earnings to that of less skilled labor It should be noted that there is no "intrinsic" value of the sur-

geon's skill per se which enables it to command such a price as it does It is true that the surgeon "saves lives", but so does the tenant farmer who raises foodstuffs It is simply the relative scarcity of men who have both the skill and the training of qualified surgeons which enables them to charge $200 00 to $2,000 00 for an hour's work in an operating room, as it is the wide distribution of farming skill which makes the number of farmers so great proportionately to the present demand for them that a tenant farmer might count himself lucky if he earned 50c an hour The sole effect of skill in determining wages is the extent to which it may be a cause of scarcity in the number of men available for certain occupations

(3) Another element that will contribute to cause differences in wages in different occupations is the relative social esteem in which these occupations are held Thus, if two occupations require equal skill and training, but one is generally considered to be a more "respectable" or "dignified" employment than the other, workers may be induced to enter the more "dignified" employment at a lower wage than it would take to induce them to enter the less highly regarded trade This accounts, in considerable measure, for the comparatively low wages of many so-called "white-collar" jobs I have heard many a shipping clerk and timekeeper complain bitterly, "Those dumb birds out in the factory are getting paid more than I am for work that I could do better than they do" But when I asked them why they did not request the boss to give them employment in the factory rather than in the office, the usual answer was that they "considered such work beneath them" The lower wage was the price which they were paying to maintain a real or imaginary dignity

(4) The great hazards or dangers of a particular occupation may cause workmen to be sufficiently reluctant to enter it so that a wage higher than that which prevails in other jobs of equal skill may have to be offered to attract them into the

hazardous occupation But such a difference in wages will amount to full compensation for the hazards involved only to the extent that all prospective workmen are fully acquainted with the nature and frequency of the danger involved and make full allowance for it For the most part, it will often be found that workmen are either insufficiently acquainted with the dangers involved or are too optimistic in believing that they individually will not be the ones to be killed or maimed, so that a hazardous occupation can usually obtain workers at wages only slightly higher than those paid in less dangerous work This is one argument for compulsory workmen's compensation insurance as against voluntary individual accident insurance

(5) Another source of inequality in wages lies in the chance of large earnings for a few successful men in certain occupations The existence of these few large prizes may be sufficient to attract many more men into an occupation than could be induced to enter it by the expectation of receiving only the average salary Thus, if anyone could be certain that he would have to spend his entire life as a $25 00 or $30 00 a week law clerk, he might not attempt to enter the legal profession But the large earnings of a small minority of lawyers who are highly successful acts as such a powerful inducement to strive for these prizes that the profession tends to become "overcrowded" until the lowest 60 per cent of the lawyers are earning less than the average plumber, and many lawyers who started out with high ideals finish as "shysters," ambulance chasers, and professional politicians The fact that the salary of a congressman is greater than what a lawyer could earn in his home town is the explanation of the demagogery employed by many in trying to keep their jobs This element of wages is somewhat analogous to the principles on which a lottery is run If the top prizes are small, there will have to be a great many of them so that there is a reasonable chance of winning one If the top prizes are

extremely large, people may be induced to participate even though the odds are hundreds or thousands to one against them

(6) The regularity of employment is an important factor influencing wages A trade where employment is highly irregular will ordinarily have to offer a higher rate per hour to attract workers than a trade requiring similar skill where the employment is steadier This explains much of the difference between the wages in seasonal and casual trades (for instance, shipping on the Great Lakes, harvest hands in the Wheat Belt, and longshoremen) and wages for similar occupations in factories which run the year round Some of this labor is cared for by seasonal migration, but a much better solution would be the establishment of off-season industries

Short-Period and Long-Run Supplies of Labor for Special Occupations

During short periods, an increase in the demand for any one kind of labor will tend to raise the wages in that occupation The short-run supply of any one kind of labor is ordinarily very inelastic As soon as all average workmen are employed, the only immediate sources of an increased amount of labor consist in working overtime, increased effort on the part of the existing working force, and the hiring of substandard workers Obviously, increases in the amount of labor offered from these sources in response to higher wages cannot be very great, and successive increases in wages will bring about smaller and smaller increases in the amount of labor offered The short-run supply of labor to an industry is essentially inelastic

Effect of Shifts in Demand for Goods on Price of Labor

Any one employer, however, can obtain an increased supply of labor for himself by offering slightly higher wages than other employers in the industry, that is to say, the supply of labor to the single firm is more elastic than the supply to the whole industry If the increase in the demand for the product is felt generally by all employers, each of them will be motivated to attempt to obtain an increased amount of labor in this fashion, and wages will be bid up competitively to the full amount of the higher marginal product occasioned by the increase in the demand for the commodity Even if the increased demand is felt by only a part of the employers, the same result will take place As workers are drawn away from those employers the demand for whose products has not increased, the marginal productivity of the remaining workers to their present employers and their importance to the employers will have increased, so that it will start to be desirable for these employers also to begin raising wages rather than to lose the remainder of their working force

Some workers may find it easier than others to shift from one employer to another Thus, single men may be able to move more easily than married men, and married men with houses on short leases can move more easily than those who have long leases or who own their own homes Older workers who expect a pension may be more reluctant to change employers than younger men, and so on This suggests one possible source of exploitation An employer may grant wage increases only to those workmen whom he knows to be willing and able to leave him if he refuses, and he may refuse to give the increases to the other workers who will not be so likely to leave[4] This is sometimes done The more intelligent employer will, however, weigh against the gains of this kind of exploitation the possible decline in productivity on the part of the workers who feel that they have been unjustly treated, and the possibility that he may find it difficult to obtain high-class workers in the future if he earns for himself the reputation of being an unfair employer

In a particular occupation, high wages due to an increase in demand for the product can persist only for the length of time that it will take for workers in other occupations to be induced by the high wage to shift over and train themselves for this occupation, or for the oncoming generation to be induced by the higher wage to enter this occupation in greater numbers than before This length of time will vary, of course, with the length of time it takes to learn the trade Ordinarily, workers will be reluctant to shift from one trade to another if they have any reason to suspect the high wages in the new occupation to be purely temporary In order to augment the supply of labor very rapidly in a certain industry, wages must therefore be either extremely high or give promise of continuing to be higher over a considerable period of time than they were before

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[4] Discriminating monopsony

In any event, the long-run supply of labor to any occupation will be much more elastic than the short-run supply After all the elements making for differences in wages which we discussed above have been taken into consideration, any wage that more than compensates for these elements will be sufficient to attract a greater amount of labor into an occupation if a sufficiently long time is allowed and no impediment to entry exists The long-run supply curve of labor for any one industry or any one occupation will have an upward inclination due solely to the fact that as more and more labor is attracted into any one industry it must be drawn away from other industries where its marginal product will be increasing as more is withdrawn

However, a mere shift in demand for goods by the public from one industry to another will not in itself be sufficient to give rise to an upward inclination of the long-run supply curve of labor for the industry the demand for whose products has increased For example, if people demand more suits of clothes and fewer pairs of shoes (perhaps because in driving cars they wear out the seats of their trousers faster than their shoes), the demand for labor in the clothing industry will increase The temporary effect will be an increase in the wages of garment workers On the other hand, since the demand for shoes has decreased, the marginal productivity of shoeworkers will decline, and shoe factories will either lower their wage rates or reduce their working force at the prevailing wage So, in the long run, other conditions being equal, the clothing industry would not necessarily have to offer higher wages than it did before the change in demand to attract the necessary number of workers away from the shoe industry If the same conditions persisted long enough, the mere fact of steadier employment in the clothing industry might be sufficient inducement for the workers to make the change Under these conditions, the long-run supply curve of labor to the clothing industry would be a horizontal straight line at the previous wage, that is, supply of labor to the industry would be infinitely elastic

On the other hand, a shift in demand for goods may cause the expanding industry to encounter a long-run supply curve of labor that is less than infinitely elastic If the product whose demand is increasing required a greater proportion of labor and a smaller proportion of capital than the product whose demand is declining, then the expanding industry will require more labor than the declining industry is willing to release without bidding up wages Thus, in our illustration above, if it requires more labor and less capital to make $100 00 worth of clothing than it does to make $100 00 worth of shoes, then the marginal product of labor in the shoe industry—in spite of decreased demand for shoes—will start to rise before the clothing industry has obtained the full number of additional workers needed Consequently, the shoe industry will start to raise wages to avoid losing more workers than it cares to part with, and the clothing industry will have to increase wages to attract the full amount of needed labor away from the shoe industry or away from other industries

If the expanding industry requires higher trained or better educated labor than the contracting industry, then it will have to offer higher wages to induce a greater number of men to train themselves for the work (Some companies meet this problem by maintaining their own schools and paying new employees to attend them This is simply another form of additional compensation) If the expanding industry requires workers in socially "undignified" or disagreeable jobs (for example, slaughtering cattle), it will attract to itself first those workers whose objections to the employment are least, but as it attempts to obtain still more workers, it will have to offer higher wages to induce the more priggish and the more fastidious workers to enter the employment The same will be true of any expanding industry offering a more dangerous employment At first it will be able to employ workers who underestimate the danger, but an increasing number of workers will have to be drawn from those who are more insistent on being compensated for the risks involved

In all these cases of rising supply price of labor to an industry, under perfect competition among employers the workers already in an industry will be able to command the same wage as that necessary to induce additional workers to enter the industry If their present employer refuses to raise the wages of old workers, other firms in the industry would be willing to pay the same wage to them as they would to attract workers from another industry Indeed, because of their greater experience in the trade, they would be more readily hired Thus these workers will be able to obtain a wage higher than that at which they would have been willing to work if the demand for the product had not increased

Imperfections of the Labor Market

We must now turn our attention to those situations in which the competition among employers for labor is less than perfect and which in consequence give rise to the exploitation of labor We have already considered some of them in the case of individuals of exceptional ability Most exploitation results from inequality in bargaining power between the employer and the employee The deficiency in bargaining power on the part of the workman is usually due to two causes lack of knowledge of the value of his services to an employer, and lack of ability to hold out for a wage if he does know his worth

The only common way in which a worker can obtain even a rough estimate of his value to one employer is by knowing what other employers are paying for the same type of work But this criterion is valid only if marginal products of labor are the same for both employees Where the different firms are widely scattered geographically, this information may be extremely difficult for him to obtain Moreover, the mere knowledge of money wages in variously located firms will not be sufficient unless the worker knows also the costs of living in different localities Thus, in order for a worker to know whether it would be worth his while to move from Chicago to Pittsburgh for a certain difference in wages, it will be necessary for him to know what Pittsburgh wages will buy in Pittsburgh as compared to what Chicago wages will buy in Chicago

In those instances where an employer refuses all wage increases, so that a worker actually has to leave his employment to better himself, the immobility of labor will act to its own disadvantage in bargaining A worker may know that another employer in a distant city is offering better wages, but he cannot be certain that he individually will be able to obtain a job with the other employer, or to keep the job if he does obtain it, thus he may remain where he is rather than take a chance on being unemployed for a time Another element that contributes to immobility is the cost of moving from one place to another Closely coupled with this is the uncertainty as to how long a wage difference will persist If it costs a worker $100 00 to move his family from one town to another, a wage difference of $2 00 a week would have to persist for one year for the worker to recover the cost of moving and break even, it would have to last for longer than a year for him actually to gain much by moving With a given cost of moving, the smaller the difference in wages, the longer the time the difference will have to continue in order to make it worth while to move Under these circumstances, if the difference in wages is small, workers may remain with their present employer, either in the hope that he may raise their wages, or through a fear that wages in the other town may fall before they have recouped themselves for the cost of moving

The worker who is unemployed and seeking a job is subject to certain other disadvantages in bargaining power as an individual The only recompense which he has if he does not work today is a day's leisure For most men a day's leisure spent in pounding the pavements and worrying about employment is not a particularly happy alternative to work On the other hand, the employer who does not hire the man will lose only the difference between the man's wages and the value of his services The closer the wage that the workman demands approaches his marginal product, the smaller this difference will be and the less the employer will lose by not hiring him The employer may thus be able to hold out for some considerable time before hiring any one workman at any particular wage, until he can be assured that there is no other workman who would be willing to work for less The ability of the workman to hold out for a wage will depend upon how much savings he has to carry him until be can find a job elsewhere and how long a time he thinks will be necessary for him to find a job with another employer who may offer more than the one with whom he is trying to bargain at present The reader will remember that we are treating here with cases of imperfect competition of employers on the labor market

By refusing to deal with those workmen who show themselves capable of bargaining shrewdly, and by taking only those men who appear to be in most need of a job, it may be possible for an employer to obtain his working force at times for a wage that is less than that which his competitors in the industry are paying As a deterrent to this practice, however, stands the fact that workmen who feel that they are underpaid may resent it and may turn out a much smaller amount of product than they would be capable of doing if they received what they considered a "fair" wage Furthermore, any employer who becomes notorious for "beating down" wages may find himself unable to obtain labor at times when the demand for labor is brisk, which will be precisely at those times when the opportunity for profit is greatest Then, too, workers who believe that they are underpaid will leave at the first opportunity that presents itself Even though the employer may be able to find a continual stream of workers to take the places of those that are leaving, the "cost of labor turnover" (costs of hiring and breaking in new men) will be greater for him than for other employers who have a more contented working force

The longer the fairly similar conditions persist, the less will be the danger of exploitation, simply because the forces of competition in the labor market—both among employers in the same industry and between different industries—will have time to exert their full effects It is the rapid changes of the business cycle—and particularly of short cycles—that make exploitation more feasible The employer who refuses to increase wages as rapidly as marginal productivity is rising (owing to increased demand for the product) in the upward movement of the business cycle may discover that before his workers have the low wage After labor has had time to shift into other industries which pay better, the increased number of firms will no longer be able to continue in the industry if they have to pay wages which are equal to those that workers can obtain elsewhere As a result some firms will have to close up, and the fixed capital invested in them will be lost A higher wage, imposed at the start by a trade-union, would have prevented the needless expansion of the industry Against this, however, must be set the disadvantage that at the higher wage many workers would have had to remain unemployed until they could shift into the other industries Unemployment might be a more powerful force than low wages to make them leave the overcrowded industry, but it will lose some of its force if out-of-work benefits are paid by the union We should have to examine each individual case on its merits to determine which was worse, exploitation or unemployment, in order to determine to what extent the prevention of unnecessary expansion in the industry represented a net gain

As far as all labor as a class is concerned, the benefits conferred by any particular trade-union cease with the prevention of exploitation The fixing of a wage, by a trade-union, which is above the marginal product of the existing number of workers in the trade will force employers to contract output and discharge laborers until a higher price for the product is reached, at which wages and marginal products are again equal The laborers who are thrown out of work because of the higher wage will have to seek employment in other trades, and their addition to the supply will tend to depress wages in those other trades At the same time, all other workers will have to pay a higher price for fewer goods made by the high-wage trade-union labor Limitation of membership by a trade-union in a highly paid trade is a denial of opportunity to other workers Monopoly wage levels are no more justifiable than monopoly commodity prices There are, however, some conceivable circumstances under which it would be possible for a trade-union to take some of the monopoly profits away from a monopolist[5] If this is the case, and neither output, price of the product, nor number of persons employed would be affected by the outcome, then the general public can sit disinterestedly on the side lines and cheer their favorites in battle

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[5] In order to do this without affecting output and number of persons employed, the trade-union would have to adopt a peculiar technique It would have to set an extremely high price for a few workers, a lower price if the employer would employ more, and so on, so that the employer could not gain by restricting output or restricting employment

CHAPTER XX

Problems of Organized Labor

SOME unions have as their avowed, or tacitly understood, purpose the overthrow of the capitalist system and its replacement by some other social and economic organization under which they think the position of labor will be better. Our interest in such unions is not in the union itself but rather in the economic plan which it advocates. We shall consider some of these plans in later chapters. Our present concern is with *business unionism,* that is, with labor organization which attempts to secure for itself better wages, hours, and working conditions within the framework of the capitalist system. It must not, however, be inferred that business unionism and revolutionary unionism are mutually exclusive classifications. Many unions which have started with revolutionary aims and which still pay at least lip service to their stated ideals have turned for all practical purposes into first-rate collective bargaining agencies. Other unions which are ostensibly business unions may actually be devoting most of their thought and effort towards changing the economic system. Almost invariably, as unions succeed in making gains for their members through business unionism, they tend to soft-pedal or lose sight of their revolutionary objectives.

It may be noted in passing that, in America, revolutionary ideals have not come spontaneously from the ranks of labor itself. They have come, rather, from "intellectuals" who have attempted to imbue the labor movement with their own zeal for reform The utter failure of most intellectuals to understand the mind of labor is responsible for their lack of success The average intellectual reasons somewhat in this fashion "The present system is wrong My plan will improve it Who suffers most under the present system? Obviously it is the workers Therefore they should embrace my program with open arms " Then he is bitterly disappointed when the election returns roll in Actually the American worker is much more interested in personal advancement for himself or for his children Free or cheap land, free public education, and a rapidly expanding industry have contributed to what Professor Perlman calls "opportunity consciousness "[1] Even though the statistical odds may have been against him, the worker has thought and *acted* as if opportunity for advancement were present for his children if not for himself The naive faith in "the value of education" is evidence of this Where the worker has been motivated to group thought and action it has most often been in the interest of those in his own trade or craft or of fellow employees in the same factory or industry Even then, such interests have centered mainly on "more benefits here and now " The "raise" in the pay envelope secured by business unionism is real and tangible as compared to vague hopes for a better status for labor under some other system a generation or two in the future Consequently, we have the amusing statement by the intellectuals that "the American worker must be *taught* class consciousness " Class consciousness is a product of the environment and probably cannot be *taught* If unemployment continues long and widespread or if our system fails to provide a better status for all labor and not simply for a few skilled trades, then we may expect class consciousness to arise by itself Until then, it is idle to expect an American worker to think and feel like a European worker who has been "born to his class" and who knows that his son will be born to the same class

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[1] Perlman, Selig, *A Theory of the Labor Movement,* The Macmillan Co , New York, 1928

The Trade-Union or Craft Union

The trade-union or craft union is composed of the members of one particular skilled occupation The large number of unions of this type is accounted for by the relative ease with which it can be organized Workers in the same skilled trade can easily see the interests which they have in common and so may be persuaded to band together to protect and advance these common interests The fact that a certain skill or training is involved makes it difficult for the employer to obtain strike-breakers in times of disputes and enhances the union bargaining power If the training of apprentices is in the hands of union members, this may be used to prevent the development of nonunion competition in response to high wages Only one, or at most a very few, wage rates need to be agreed upon by the members in order to present a common front to the employers Wherever the workers in a skilled craft constitute only a small minority of an employer's total working force, an increase in their wages alone may result in only a small increase in total labor cost and consequently, such an employer may be persuaded fairly easily to make concessions rather than be forced to shut down his entire plant because of a strike by these "key men" Since the members of the union are generally on nearly the same intellectual level and have a common standard of living, internal friction due to jealousy is kept at a minimum

Disadvantages of the Craft Union

The craft union is extremely vulnerable to technological changes in industry New machines are often invented by which unskilled or semi-skilled workers can do the work formerly performed by skilled craftsmen If a craft union attempts to prevent the introduction of the machines in present factories, competitive nonunion factories will be organized to use the machines[2] High union wage rates in a particular craft may result in substitution of products or materials which have lower costs (substitution of poured concrete for brick or stone masonry, for example)

Another difficulty, which is partly the result of changing technology and partly inherent in the craft union type of organization, is that of jurisdictional disputes A building contractor, for example, may have signed a contract with both the carpenters' union and the sheet-metal workers' union He then gets a job erecting a building which has specifications calling for metal doors and doorframes The carpenters' union insists that installing doorframes and hanging doors is carpenter work and should be done by them The sheet-metal workers claim that the doors and frames are made out of sheet-metal and must be installed by their union Each side threatens to strike if the work is given to the opposing union

Strikes resulting from jurisdictional disputes have brought more discredit on the labor movement in the mind of the general public than any other single cause When an employer signs a union contract, his labor troubles should be over for the duration of the contract so long as he keeps his side of the bargain in good faith Note that in the long run, it is the union *officials* rather than the rank and file of the *membership* who have most at stake in a jurisdictional dispute If the demand for sheet-metal work is increasing and the demand for carpentry decreasing, youths who are about to learn a trade may learn metal work rather than carpentry and even some of the carpenters may change their trade to that of sheet-metal work If the number of union carpenters declines, however, the treasury of the carpenters' union will no longer be able to support union officials in "the style to which they have become accustomed" If there were but one industrial union embracing all building trades workers, the officials of such a union would not have such a personal stake in the result and would probably not tolerate a strike originating in a jurisdictional dispute between their own members

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[2] See p 332

In the past, organization upon trade or craft lines has left unorganized the vast majority of unskilled and semi-skilled labor Consequently, as the craft unions raise wages, they are subject not only to the elasticity of substitution of capital for labor[3] but also to the elasticity of substitution of unskilled for skilled labor (At least part of the saving in pre-fabricated houses results from the smaller amount of skilled labor which is required both in manufacture and in erection)

The failure to organize the unskilled also accounts for the failure to organize a politically powerful labor party It is true that the American Federation of Labor has always opposed the formation of such a party, but its attitude on this question might have been quite different if it had had twenty or thirty million members to vote instead of its two or three million skilled workers Many of the reforms which the economic system has had to digest since 1933 might have come earlier and more gradually if labor had been better-organized politically in the past three or four decades

Industrial Unionism

Industrial unions attempt to organize all workers in a given industry, regardless of their particular trade, occupation, or degree of skill The industrial union is much better equipped to meet the problems of changing technology than is the craft union Whether a job is performed by machine or by hand or by one trade or another, it still may be done by an industrial union member As the industrial union may have a much larger membership than a craft union, it may be able to support its officials and pay for office expense upon the basis of a much smaller contribution per member To the extent that it is able to organize an entire industry, it may be better able to prevent nonunion competition If the union is able to call a strike of the employer's entire working force, skilled as well as unskilled, he is not apt to be able to run the plant with strikebreakers With larger membership, the industrial unions will have greater political strength than the craft unions

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[3] See p 333

Disadvantages of Industrial Unionism

We have said that the industrial union is better equipped to handle jurisdictional disputes due to trade or craft differences Such disputes center around the *definition* of the work of a trade or craft As industrial unionism expands, it will begin to encounter jurisdictional disputes based upon the *definition of an industry* Several possible bases for demarcation of the borderline between one industrial union and another may be suggested, but each is open to objections

(1) Require that all those working for the same employer belong to the same union In the case of the United States Steel Corporation, this would include mineworkers, who might more properly belong to a mineworkers' union, structural steel erectors, who should belong to a building trades industrial union, and railroad trainmen and seamen, who might be placed more appropriately in railroad and shipping unions

(2) Require all workers making the same product to belong to the same union In the case of electric refrigerators, such a union would include only part of the employees of General Motors, Nash-Kelvinator, General Electric Company, and only part of the employees of many kitchen equipment manufacturers

(3) Require all workers using the same material to belong to the same union In the case of leather, this would result in a conflict between the jurisdictions of a shoe and leather workers' union, an automobile workers' union, and a furniture and upholstery workers' union

(4) Make the union co-extensive with any employers' or manufacturers' association in a particular field, for the purpose of presenting a united front in bargaining with such an association Many manufacturers, however, who produce a variety of products, are members of more than one association This basis would, in many cases, cut across all three of the other types of classification

Two principles are involved in the selection of the proper basis of industrial union organization (1) As far as possible, different employers should be kept on the same competitive basis in hiring and using union men to make products which are sold in competition with each other (2) To secure solidarity, all workers in one factory should, as far as possible, belong to one union As may be seen from the preceding discussion, even these two principles are not mutually exclusive

No scheme of classification will be able to work without modifications in individual cases as questions arise This suggests the need of a strong central organization governing all industrial unions which will have the power to make and *enforce* somewhat arbitrary decisions as to which union shall have the right to organize any particular group of workers whose status is in question This will work more smoothly the more any one of our four bases is adhered to as the *primary* basis of classification, from which exceptions will be made in particular cases The greatest danger of conflict lies in the possibility of the rapid organization of several different industrial unions, each with a different primary basis for membership Whether the C I O will be found capable of meeting these problems remains to be seen The dismal failure of the

A F of L to solve these questions accounts, in the main, for the growth of industrial unionism outside of, rather than within, the Federation

Another very weighty problem which confronts each industrial union is the determination of *different* wage scales for workers of different skills within the union membership So far this problem has been side-stepped by the newer industrial unions through the expedient of using the existing wage scales and simply demanding a 5 or 10 per cent increase in pay for all workers This dodge will not work forever A great increase in demand for airplanes, for example, may result in an increased demand for toolmakers by the airplane industry Then, unless toolmakers in the automobile industry are paid higher wages, they will shift to the airplane industry and automobile factories would have to close from lack of these skilled men The automobile factories, however, will not be able to pay increases to all employees Consequently, the automobile workers union will have to negotiate wage increases for the toolmakers but *not* for other employees It is even quite conceivable that the automobile industry may already be paying as high a *total wage cost* as it can afford unless output and employment are reduced In such circumstances, if the union wishes to keep all its members employed, it will have to negotiate wage *increases* for the toolmakers and wage *decreases* for other workers Another circumstance which will force the union to consider wage differentials is the introduction of a new machine Running the new machine is a new job and a new wage rate will have to be determined for it If the wage on the new job is set too high in relation to the amount of skill required, other union members may become dissatisfied If the wage is set too low, workers on the new job will be discontented and the machine may be introduced much more rapidly than necessary owing to the added incentive of lower wage cost This does not imply that these problems are insoluble (The Amalgamated Clothing Workers have done a first-rate job along these lines) It does indicate, however, that if industrial unionism is to avoid the perils of internal dissension, it must have leaders with a sound economic knowledge of the business with which they are dealing and with sufficient statesmanship to make the rank and file of the workers accept their ideas Leaders must be capable of saying "No" to unwarranted wage increases and of ordering wage reductions when necessary

Union Wage Policy

In the early stages of their organization, most unions take the attitude that they are "fighting the battle of labor against exploitation by unscrupulous employers," and there are no doubt many situations in which this may represent the facts of the case Because this attitude has a certain amount of dramatic appeal to the public it is also usually the favorite pose even of officials of a well-established union when they are being quoted by the press

However, once the union has won its struggle for recognition and has become the bargaining agent for its members, it is actually in the *business of selling labor*[4] Whether the union itself recognizes the situation or not, it is actually in much the same situation as a monopolist attempting to sell his product The union may fix the price of labor, but it will then be the conditions of demand which determine the number of men who will be employed at that price

In most cases, the demand for labor is a derived demand Employers do not generally hire labor for its own sake but rather because the labor is capable of making some product which the public will buy Thus the demand for labor is derived from the demand for the product In any case, where it is possible to vary the proportions of capital and labor which are used in making a product, the demand for labor, in the long run, will be more elastic than the demand for the product itself

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[4] See Schlicter, Sumner, *American Economic Review*, March 1939, pp 121–137

A source of possible confusion which may prevent the union from perceiving clearly the full implications of its wage policy is the fact that the short-period demand for a certain type of labor may be fairly inelastic while the long-run demand for the same labor is extremely elastic The building trades offer a good example of this Assume that a certain contractor has signed a contract to build a large apartment house Such a contract usually provides a bonus if the building is completed ahead of the agreed date and a penalty for delayed completion The contractor, therefore, is in a position where he may agree to considerable wage increases without cutting down his working force Indeed, after a brief strike is settled, he may even hire more men than before in order to complete the job on time He is in a position where he may have to forego his profits, or even take a small loss, in order to avoid a greater loss On all future contracts, however, this contractor and all others dealing with the union will regard the new high wage scale as given cost data in setting their bids The cost of building apartments and hotels may then be so high that it will be impossible to make a profit from their rents No hotels or apartments will be built at such costs, and the vast majority of the building trades workers will then find themselves unemployed

Only in the event that the elasticity of demand for a given type of labor is *less than unity* will it be possible for the entire group to benefit by a wage high enough to result in some unemployment Under this circumstance, it might then be possible to assess dues upon those who are employed and pay out of work benefits to those who are unemployed In any case, where the elasticity of demand for labor is greater than unity, total wages paid out will be less at a high wage than at a low wage In such circumstances, any wage high enough to result in unemployment means a net loss to the union membership considered as a group If all wages were pooled and then divided equally among the membership, both employed and unemployed, the effects would be apparent to everyone In actual practice, the majority who remain employed will gain at the expense of the minority who are unable to find work

There may be cases in which an industry is composed of a large number of efficient employers and a few very inefficient ones, who manage to stay in business because the general wage level in the industry is low In such circumstances, a higher union wage level imposed on all employers would drive the inefficient ones out of competition If the other employers were all operating under conditions of decreasing costs, they might then be able to absorb (even at the higher wage) all the employees who are laid off by the firms which fail Cases like these are among the few in which minimum wage laws may benefit labor as a whole

The position of the union official with respect to the wage problem is by no means a happy one He may happen to understand the economics of the situation without being able to enforce his policies Let us suppose that the wage scale is the highest which can prevail for the time being without resulting in serious unemployment A rival for the office may then make political use of the situation, telling the members, "What has this fellow done for us? We haven't had a raise in two years Put me in office and I'll see that we get action" The official is then faced with a situation where he must either convince the membership that the present wage is better policy than a higher one, or yield to pressure and fight for a higher wage which he believes will be injurious to the union's best interests, or lose his office to the rival who will fight for the higher wage

Hours of Labor

Historically, we have witnessed the somewhat startling phenomenon of increased productivity per worker with a shorter working day Not all of this increased productivity can be traced to the shorter day since new machinery and new methods have been introduced in many instances There have, however, been many experiments in which, with the same machinery and methods, the length of the working day has been reduced from twelve to ten hours, or from ten to eight hours, with an actual increase in total output from the same labor force. Wherever increased productivity results from a decrease in hours, there is a clear gain both to the employer and to the worker.

We have probably approached the limits of such gains in many industries Productivity *per hour* might still be increased through a shorter day, but it hardly seems reasonable to expect that a man will produce more in six hours than in seven or eight hours Several factors are at work The increased productivity of the eight-hour day over the twelve-hour day is largely accounted for by the proper amount of rest given by the eight-hour day Once a worker has sufficient time to get the rest he needs, this source of possible increased productivity tends to be exhausted It is also well-known that even in short working days the first and last hours are the least productive due to "getting into the swing" and "getting ready to stop" If the day is shortened from eight to six hours, these two hours become one-third of the total working time and productivity in the other hours would have to increase considerably to make up for them as well as for the two-hour decrease in the length of the day It may still be the case, however, that many industries will find productivity increased by a reduction from a six-day forty-four-hour week to a five-day forty-hour week

In many labor disputes we must be careful to distinguish between the demand for an actual shorter working day and a shorter "basic day" The latter is usually a demand for higher wages in disguise The workers do not care to work shorter hours in such a case, but they want the overtime wage rates to begin at an earlier hour Workers have sometimes struck for a shorter "basic day" and then have been very much disappointed when the employer shortened the length of the actual working day One argument can be offered for the short basic day It may be a means of making the employer pay higher wage rates in rush times when he can afford to do so, without compelling him to pay the same rate when work is slack This will be the case, however, only when the actual day is the same length as the basic day in the slack seasons

"Share the Work"

The shorter working week has recently been advocated as a means of relieving unemployment It is open to serious question in this respect In most cases, the employer cannot afford to pay the same wage for a shorter week, unless productivity is as great in the shorter week as in the longer one If the productivity is as great, he will require no additions to his present working force to produce the same amount of product If wages per week are reduced in proportion to the reduction in working time, this becomes a method of sharing the unemployment If the week is reduced from forty to thirty hours, and the wage from $40 to $30, we may say that all workers who were formerly employed at forty hours are now 25 per cent unemployed However, it is by no means certain that in such a case the employer would hire 25 per cent more men to make up for the reduced hours

There are several reasons for this In some cases the employer may be producing for stock in order to keep his working force employed Such an employer would not be motivated to take on more workers by a reduction in hours For every employer, the hiring of added men means an increase in expense for workmen's compensation insurance and an increase in payroll taxes for social security If this happens to result in higher unit costs, the operating force will not be increased by a full 25 per cent The possible effect of shifts in demand may also affect the final result Assume that WPA workers now receiving $20 a week are employed at $30 per week as a result of the shorter week This represents an increase of $10 per week in their "purchasing power" Against this, we have a drop of $10 per week in the purchasing power of the workers who were already employed and whose wages decline from $40 to $30 The increase in demand of the first group will be concentrated mostly on "necessities," while the decreased demand of the second group will be mainly in the field of "comforts" and "luxuries" Whether total employment resulting from these opposite changes will increase, decrease, or remain unchanged, is difficult to prophesy

Working Rules

Different unions have different working rules, varying from a few short and simple regulations to a long and complex document We shall consider only some of the most common As a union achieves a high wage scale, there is a tendency on the part of the employer to substitute lower-paid labor for union members wherever possible Many union rules are drafted in an attempt to defeat this practice For example, a rule may specify the number of apprentices or helpers which may be hired for each union man on the job Other rules may specify very carefully the type of work which must be done by master craftsmen and that which may be done by apprentices or helpers (A carpenter's helper may drive nails but must not use a saw, plane, or chisel)

Another group of rules may deal with restriction of output That is, that which constitutes a "day's work" is specified and no union member may exceed this performance   The original argument offered for such regulations is that they are designed to prevent the driving or "sweating" of workmen by the employer   In many cases, however, the amount of the "day's work" has been steadily reduced through other motives

Both apprenticeship rules and restriction of output are usually the result of a very common fallacy in union reasoning, namely, the assumption that there is a fixed amount of work to be done   The idea is then that if each man does less work, or if the work is confined to master craftsmen as far as possible, there will be more jobs for union men   This idea is valid only if the demand for the product is *perfectly inelastic*   With any considerable amount of elasticity of demand for the product (as is more often the case in reality), these rules may have the effect of *decreasing* the employment of both union men and helpers   An example of this case may be helpful   Let us assume two different sets of cost figures for a five-room house, as follows

CASE I		CASE II	
3 Union men	$1,500	6 Union men	$3,000
9 Helpers	900	6 Helpers	600
Materials	1,600	Materials	1,600
Total cost	$4,000	Total cost	$5,200

If conditions of demand for these houses are such that 300 of them would be bought at $4,000 but only 100 at $5,200, the employment situation would then be

CASE I		CASE II	
Union men employed	900	Union men employed	600
Helpers employed	2,700	Helpers employed	600
Total employment	3,600	Total employment	1,200

Now let us assume that instead of requiring a ratio of 1 union man to 1 helper, Case I is altered by cutting the union "day's work" in half   The cost situation would then be

CASE III

6 Union men	$3,000
9 Helpers	900
Materials	1,600
Total cost	$5,500

If the demand is such that 90 houses will be bought at $5,500, the employment situation will then be

CASE III

Union men employed	540
Helpers employed	810
Total employment	1,350

We have, of course, picked a situation of very elastic demand (although it may be a close approximation to the facts) The point to be emphasized is that the union cannot count on a change in working rules to "increase the number of jobs" unless it is actually certain that the demand for the product is *extremely inelastic* Again we see the necessity for the union to recognize that it is in the business of selling labor-power and that it must pursue a wise price policy in its own self-interest

The National Labor Relations Board

Under the act establishing the National Labor Relations Board, an employer is compelled to engage in collective bargaining with a union chosen by his employees Thus the "right to bargain collectively" has now acquired legal status The employers who have gone to such violent lengths in opposing union organization are probably more responsible for the passage of this act than any other single cause If it does nothing else, the act should tend to reduce the number of strikes where union recognition is the main issue

The ultimate benefit to labor as a result of this act depends not so much upon the decisions rendered by the Board as it does upon the ability to organize competent business unions (either craft or industrial) in the previously unorganized fields

Unions in the past have been the products of a slow and steady growth which has given them a chance to develop competent officials and to understand the necessity for a strong union discipline There is grave danger that the new unions which have been established by mushroom growth will prove so irresponsible that public reaction will start the pendulum swinging the other way again just as it did after the experience with the War Labor Board

CHAPTER XXI

Unemployment

THE EARLIER chapters of this book touched only lightly the question of unemployment. This omission was occasioned by the fact that in most of our discussion we have been concerned with the analysis of long-run equilibrium conditions. In other words, we have said to ourselves "Here is a certain set of economic forces, given a sufficiently long period for these forces to exert their full effect (with no change in other data meanwhile), what will be the final result when equilibrium is attained?" Involuntary unemployment of labor (or of any other factor of production) is not consistent with long-run equilibrium. In fact, the existence of involuntarily unemployed units of factors of production is evidence that full equilibrium has not been attained, for these unemployed units, rather than remain unemployed, will underbid the price which is being received by the employed units. This is another way of saying that when unemployment exists, the prevailing price of a factor is not the final equilibrium price. On the other hand, if the price of a factor *is* the equilibrium price, then the presence of unemployed units of the factor (willing to work at that price) is evidence that firms and industries have not yet expanded to their equilibrium output, at which equilibrium output all of these previously unemployed units of the factor will be hired. In any event, we see that involuntary unemployment is a short-run rather than an equilibrium phenomenon.

We must recognize, however, that in the actual world full equilibrium is never attained Usually before full and final equilibrium can be attained under one set of conditions, the conditions themselves change (new inventions and discoveries are made, shifts in demand for products occur, changes in banking policy take place, and so on) These changes call for an equilibrium adjustment different from the previous one, but before this can be fully attained the conditions will change again, and so on The question of unemployment becomes, then, not a question of final equilibrium, but a question of whether the economic system can adapt itself rapidly enough to changes in conditions so that units of a factor that are thrown out of employment by a change can be re-employed within a reasonable length of time

Unemployment of labor may be classified under several main causal heads as follows

1 Seasonal unemployment
2 Casual unemployment
3 Cyclical unemployment
4 Technological unemployment
5 Voluntary unemployment
6 Unemployables (personal unemployability)

Seasonal Unemployment

Seasonal unemployment, as the name implies, is caused by seasonal changes in the demand for labor in certain industries. These seasonal changes may be attributed either directly to changes in the weather or to conventional practices Examples of occupations which are seasonal because of weather are harvesting, lumbering, navigation on the Great Lakes, work at summer resorts, and so on Conventional seasons may be occasioned either by the existence of certain holiday business or by traditional trade practices Thus, the department stores always hire extra help for the Christmas and Easter rushes

The former practice of the automobile manufacturers of introducing their new models at the first of the year gave rise to a peak demand for labor in the early spring months with a sharp falling off in employment during August, September, October, and November They have now attempted to remedy this somewhat by bringing out new models in the late autumn, when demand would otherwise be slack A still better solution, for the purpose of decreasing seasonal unemployment, would be for each manufacturer to bring out his new models in a different month Such an agreement is not likely to be adopted, however, for fear it would give a competitive advantage to one manufacturer or another In other industries many methods of reducing the amount of seasonal unemployment have been developed, but much more can be accomplished than has been done to date, particularly by the application of known methods by firms and industries which do not now use them

Casual Unemployment

Casual unemployment is occasioned by more or less haphazard fluctuations in the amount of work to be done in certain trades The classical example of casual unemployment has been the work of the longshoremen who load and unload ocean freighters The irregularity of steamship arrivals results in the need for a large number of workers some days and none on other days This results in a large number of men "hanging around" in the hope of obtaining work, but actually working only a small proportion of the time The situation is aggravated in those ports where the longshoremen must report to an individual steamship company's dock, thus keeping an unemployed "labor reserve" for each individual company In ports where a central "hiring hall" is maintained for longshoremen by either the union or an employers' association, employment fluctuates only with the total number of ships in port rather than with the number at any particular company's dock

Both seasonal and casual unemployment are partially compensated for by a higher hourly wage than that prevailing in other occupations requiring equal skill but offering more regular employment This solution, however, is satisfactory neither to the employer nor to a great many of the employees The employer has higher labor costs than he would have if he could offer more regular employment Only those employees gain who are employed a greater proportion of the year than is the average expectancy in such an irregular occupation For example, an oiler on a Great Lakes freighter which starts operation at the opening of navigation in April and continues in service till the close in November or December, may make higher annual earnings than an oiler on a stationary engine ashore On the other hand, an oiler on a vessel which does not start to operate until late in June and which lays up in early September will earn far less than the man on shore

Some connection may be noted between irregularity of employment and violence in labor disputes, although the exact causal relationship is not clearly established It may be that irregularity of employment begets irresponsibility among the workmen, it may be that irregular employment attracts an irresponsible type of man, or it may be that irregular employment prevents the establishment of a disciplined trade-union membership In any event, strikes in the seasonal and casual trades, when they do occur, are usually notorious for their violence and destruction

Cyclical Unemployment

Cyclical unemployment is that unemployment connected with those fluctuations in business activity that are known as *business cycles* A fuller discussion of the causes of the cycle is reserved for a later chapter For the purposes of this chapter we are concerned solely with the relations between business cycles and unemployment. In the expansion (or prosperity) phase of every business cycle, prices are rising.[1] This rise in prices contributes to cause an increase in wage rates in two ways: (1) as prices rise more rapidly than costs, opportunities for profits appear, causing old firms to expand and new firms to enter old industries, thus creating an increased demand for labor (demand curves for labor in various industries shift to the right), (2) as costs of living advance, workers are motivated to insist on receiving higher wages and are encouraged to do so by the fact that various employers in the same or different industries are bidding for their services (supply curves of labor for individual industries shift to the left, because opportunity costs are higher). Thus for each firm we have an increased demand for labor in terms of money and a decreased supply of labor in terms of money, both contributing to cause a rise in the wage rate.

At the start of this period unemployment may have existed (due to a past cycle). As soon as all workers are employed, however, further increases in wages will not result in a greater total number of employed workers, but merely in shifts of workmen from one firm or industry to another as employers bid competitively for labor services and one employer outbids another. To the extent that the banking system is creating bank money (deposit credit) and loaning it to businessmen, this competitive bidding for labor and increase of demand for labor in terms of money is intensified.

It must not be inferred from the preceding discussion that the position of labor in the "prosperity" phase of the business cycle is as roseate as would appear at first sight. Of course, the workers who were previously unemployed and who now find jobs are better off. (They would have been still better off had there been no previous cycle to throw them out of work in the first place) Remember that we have been talking about demand for labor *in terms of money* and about *money wages* To the extent that the costs of living are rising faster than money wages, *real wages* are actually declining Real wages are the amount of goods that money wages will buy Thus, in times of rapidly rising prices, a $40 00 a week wage may buy *fewer* steaks and potatoes and shoes than a $20 00 a week wage could buy before the price rise

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[1] This expansion phase and these rising prices may have been caused either by an innovation or by expansion of credit by the banking system, or by both. See Ch. XXXV on "Business Cycles."

It is, however, with the recession and depression phases of the business cycle that we are primarily concerned in a discussion of cyclical unemployment As we shall point out in the following chapter, if a period of inflationary prosperity is allowed to develop, a deflationary reaction is inevitable As prices fall below average variable costs, firms find it preferable to close down rather than to continue in operation, and men are thrown out of work Other firms whose demand curves have shifted to the left, although they may not close down, will find it advisable to restrict output and consequently to reduce the number of their employees If a previous inflationary prosperity has been allowed to develop, a considerable amount of deflationary unemployment will be unavoidable The problem is then to care for the unemployed in such a way that the depression will not be prolonged nor unemployment increased by the methods of relief Some aspects of this problem will be discussed later

We must not overlook the importance of rigid wage rates as a force which tends to increase the amount of cyclical unemployment which ordinarily accompanies a business recession High wages prevail at the end of a period of prosperity But it is only while high prices and large volume of business prevail that business firms can afford to pay these high wages and to maintain the same number of workers employed As prices fall, some firms are forced to restrict output and others to close down entirely However, if wages should decline as rapidly as prices, the firms would not find it to their advantage to restrict output so drastically, nor would so many firms be forced to close down From our discussion of costs we may recall that a firm will continue in operation as long as price is above minimum average variable costs (fixed costs need not be covered in the short run, and a depression is a short run event) A decline in wages lowers average variable costs and lowers marginal costs Consequently, a fall in the price of the product that would force a firm to close if wages remain high, need not force this firm to close if wages fall along with the price of the product

We see, then, that the policy advocated by some people in 1930 of "maintaining wages in order to maintain purchasing power" was an economic fallacy A simple example will serve to make this clearer even in terms of "purchasing power" Suppose that there is a factory employing 10,000 men Suppose next that to keep wages at $40 00 per week the factory will have to reduce its working force to 5,000 men Total purchasing power of the men who remained in employment would then be $200,000 00 per week; the other 5,000 men would be thrown on relief On the other hand, suppose that with a 25 per cent cut ($40 00 to $30 00) all 10,000 might remain employed Total purchasing power would then be $30 00 times 10,000, or $300,000 00 per week, and there would be no relief burden Even if only 8,000 could be employed at $30 00 per week, total purchasing power would be $240,000 00, and only 2,000 would be unemployed

It should not be inferred that rapid declines in wages will be sufficient to prevent all unemployment in periods of business recession Some industries will have become so greatly overexpanded during the period of prosperity that no rate of wages greater than zero would permit the continued employment of all men in those industries But no careful student of the problem would deny that falling wages would tend to reduce the volume of cyclical unemployment by a considerable amount. This is not a case of being hard-boiled, it is simply facing squarely the economic facts instead of looking at them through out-of-focus pink glasses.

Trade-union wage policy should be examined in the light of these facts. All trade-unions find it easier to obtain wage advances during a period of prosperity, both because the employers can afford to pay more and because a strike would be very costly to employers at this time. Some unions are astute enough to agree to voluntary wage cuts in periods of business recession in order to keep a majority of their membership employed. Others are notorious in refusing to cut wages a single penny, even during the depths of the period of depression. When a union insists on maintaining prosperity wage levels, its full membership will be employed only at peaks of prosperity, when prices justify paying such wages. At all other times a greater or less number of its members will be without employment. There is some question as to whether this type of unemployment should be called cyclical unemployment or "voluntary trade-union unemployment."

Technological Unemployment

Technological unemployment is a phrase which has caught the fancy of the public in recent years, and more than the usual stock of misinformation has appeared in the public prints. By technological unemployment is ordinarily meant the displacement of labor by machines, by new methods of production requiring less labor for a given output, by new substitute products (for instance, rayon versus cotton), or by consolidations of existing firms (for example, mergers). The supposed displacement of labor by machines is the most spectacular of these technological factors and has consequently received the most attention, but the other forms fall in exactly the same economic category and are subject to the same type of analysis

Before going further into the question we must examine the meaning of the phrase "displacement of labor" more carefully. A casual observer may look at a new machine and say, "Here is a machine that will do the work of 25 men It will throw 25 men out of work" But if the time of ten men is required—some of them to run the machine, some to keep it in repair, and some to make new machines as this one wears out—the net displacement of men by the machine will not be 25 but only 15 men

Even so, will the introduction of machinery decrease the total number of jobs available? A careful economic analysis will show us that in the long run it cannot do so The logic of the situation is as follows use of the machine (or other "labor-saving" method) must give rise to lower costs, otherwise it would not be adopted Given this fall in costs, various possibilities present themselves, depending upon the degree of competition which prevails in the industry and upon the nature of the demand for the product. These possibilities are. (1) the price of the product falls by the full amount of the fall in cost, (a) elasticity of demand for the product being equal to or greater than unity, (b) elasticity of demand for the product being less than unity, (2) the price of the product remains the same, and the difference between price and cost goes into a monopolistic employer's pocket We shall now consider each of these possibilities and its consequences

1 (a) If the price of the product falls by the full amount of the fall in cost and the elasticity of demand for the product is equal to unity, the same number of men will be required to run the machines producing a larger output (increase in amount purchased is proportional to the fall in price) as was required to produce the former smaller output without the use of the machine No labor is displaced If the elasticity

of demand for the product is greater than unity, the increase in amount purchased will be greater proportionately than the fall in price, and *more men* will be required to produce the greatly increased output than were needed by the industry before the introduction of the machine. This is no mere example of "logic chopping" but has been borne out by actual experience when new machinery was introduced in many industries. For example, the Owens glass bottle-blowing machine when introduced was supposed to do the work of 100 men blowing bottles by hand. Yet, with the fall in price caused by consequent lower production costs, so many more glass bottles were used (for example, pickles and olives were now sold in glass bottles instead of in bulk from a barrel) that the industry soon employed many more thousands of men than were employed in the old days of blowing by hand. Henry Ford has introduced one automatic, or semiautomatic, machine after another into his factories, and yet with the steady decline in the price of the Ford car the number of Ford employees has grown from 1,000 to over 150,000. General Motors, which in 1912 employed 16,584 men, in 1937 with much more efficient machinery employed over 200,000. The 1937 figures are chosen so as not to include the effects of war orders. Similar results occurred from the introduction of the linotype machine into the printing trade and from the introduction of machinery into other industries, accompanied by falling prices and elastic demand for the products.

1. (b) If the price falls and the elasticity of demand for the product is less than unity, the public will not have to spend so much to buy the same or a slightly greater amount of this product than it did before. The difference between what the public formerly spent and what it now spends is released as additional purchasing power to buy more of other goods. The workers displaced by the machine may be reemployed in the making of those other goods. It will be a

question of how rapidly they can shift over to the other industries. However, we notice that the total number of jobs available is not decreased.

2. If the employer is in a position to keep the price the same as before and to keep the saving in cost for himself, he will do either one of two things with the extra money: spend it, or invest it. If he spends the money, the solution is the same as was given under 1 (b)—that is, the number of workers displaced by the machine will be required to make the products for which he spends the money. Moreover, the employer who spends the money is quite likely to spend it for "luxury goods." Most luxury goods require more hand labor than a larger quantity of less expensive goods that would sell for the same amount of money. Hand labor or hand finishing is required to give luxury goods their element of "distinction." Luxury goods are also often made to individual order and consequently are not adaptable to mass production. If this is the case, then more labor will be required to make the new goods than was released by the introduction of the machine.

If the employer invests the money, this is just another way of saying that he is spending it for producers' goods rather than for consumers' goods. Workers will be required to build the factories for which the money is spent and to run them.

We have examined all the possibilities and found that, *in the long run,* technological unemployment is an economic impossibility. The steady growth both in total number of employed and in the percentage of total population gainfully employed (women workers in industrial employment and offices were almost unknown prior to 1890) since the Civil War lends substance to this view. In the short run, technological unemployment, if it occurs at all, occurs because the introduction of successive new inventions throws men out of work more rapidly than they can be re-employed in the ways outlined above. Whether this is actually the case at the present time we have no way of knowing, since the Federal Government (regardless of which party is in power) has persistently refused to count the number of unemployed to find out how many there actually are Recent figures are more accurate, but it is still a difficult question to determine by a census whether workers are voluntarily or involuntarily unemployed Ordinarily, most of the figures on unemployment that appear in the papers are wild statistical guesses, and many of them are biased guesses Furthermore, the constant recurrence of the business cycle is an important factor in delaying or impeding the re-employment of workers as machines take their places in different industries *Much or all of what is commonly called technological unemployment may really be cyclical unemployment*

Voluntary Unemployment

Voluntary unemployment may be of several varieties Some people have sufficient independent income to support themselves and do not care to work These people need not concern us further, although the socialist would say that they are drawing an income from a society to which they contribute no productive services Another group of people are unemployed because they are waiting for a higher wage than is being offered to them at present If the worker does not have to remain unemployed any great length of time before he obtains work at the wage he is insisting on, this constitutes no serious problem Note, however, that the longer he remains out of work, the longer must he be employed at the higher wage to make up the loss occasioned by not working For instance, suppose a worker is offered $1,500 00 a year but is holding out for $2,000 00 If he has to wait a full year until business conditions improve and he can find a $2,000 00 job, he will then have to work for three full years at $2,000 00 in order to recover the money he has lost by being idle a year, We must not overlook the influence of too generous relief payments in swelling the volume of voluntary unemployment If relief payments are $10 00 a week and jobs are being offered at $15 00, there will be many who will prefer not working for $10 00 a week to working at $15 00 Unless relief rolls are carefully pruned and men removed from the rolls when they refuse proffered jobs, the payment of relief may be a serious factor in prolonging a period of business depression

We have already spoken of voluntary trade-union unemployment, occasioned because a union sets so high a wage that a large number of its members will not be employed If, under this situation, it was always the same individuals who remained continuously out of work, this condition could not last The workers who were out of work would either insist that the union fix a lower wage at which they might be employed, or they would leave the union and accept lower than union-scale wages in order to find employment What really happens in many trades, however, is that instead of half the workers being employed all the time and the other half none of the time, there is a longer interval between jobs, and *all* the workers are employed half of the time The use of a union "waiting list," on which the man who has been out of work longest is placed at the top of the list and gets a job first, is almost a guarantee that this situation will result Thus, when the members are unemployed a considerable share of the time, they are likely to place all of the blame on "bad business conditions" instead of attributing part of the blame to the union wage policy Even if an individual member is aware that the high wage policy is resulting in unemployment, there is always the chance, or the hope, that the next job which he gets will be one that lasts a long time so that he will make good earnings at the high wage rate Consequently he may do nothing to oppose the wage policy of the union

Where chronic trade-union unemployment exists, the usual remedy adopted by the union is to decrease the number of apprentices who are allowed to learn the trade If maintained long enough, this policy will eventually eliminate the unemployment in the trade, but it has other, more serious consequences Since fewer men are allowed to enter this trade, there will be more men competing for jobs in other occupations and so tending by their competition to lower the wages of others Also, the other workers will have fewer goods at higher prices, as manufactured by the monopolistic trade union For example, the stumbling block in the path of all efforts to provide adequate low-cost housing for the poor has been the high cost of building-trades labor

By *unemployables* is ordinarily meant those people who are physically or mentally incapacitated for work It is true that there are some people who are absolutely incapable of doing any productive labor whatsoever But, except for this class of people, the term *unemployables* should not be used except with reference to a certain wage rate There may be many partially incapacitated people who are not capable of earning the wage rates that are being paid by industries at present Some of these may be cared for through the organization of industries to take advantage of what capacities they have (for instance, the industries now run by the blind) Others may find work by working at lower wages to compensate for their lack of efficiency But if a minimum wage is imposed by law without making some special provisions for this type of worker, it will be surprising indeed if the number of unemployables does not increase

Unemployment Relief

Our attention now turns to methods of unemployment relief Public conscience in the more industrialized countries has attained to the point where it will not allow the involuntarily unemployed to starve Praiseworthy as this attitude is, it should not lead us into a blind sponsoring of all proposed relief methods regardless of their individual merits It is exceedingly important that the methods of relief adopted should not be such that they will tend to increase the number of unemployed, to make unemployment permanent, or to prolong business depressions While we have not the time to examine all proposed schemes of relief, if we can develop an understanding of the principles involved, we shall then be able to apply these principles as a test of the economic practicability of such measures of unemployment relief as come to our notice

In the first place, relief payments are said to "create a volume of secondary employment by putting purchasing power into the hands of the consumer" What is meant by this statement is that other people will be employed to make the goods which the relief recipient buys with the relief money But is this statement correct, will unemployment be increased? To answer this question, we must know from whence comes the money for the relief payments If a government obtains money from someone who would otherwise have spent it anyway, his spending would have created just as much "secondary employment" to make the goods which he buys as does the spending of the money by the relief recipient Only in the event that a government obtains money that would *otherwise have remained idle,* does government spending for relief actually "prime the pump" and provide *additional* secondary employment

The sources from which a government can obtain funds for relief purposes are few taxation, borrowing, and the printing of new paper money. If taxes are collected from people who would otherwise have spent the money or invested it (spent it for producers' goods), then obviously no additional purchasing power is placed in circulation Money is merely taken from the hands of the taxpayers and put into the hands of the relief recipients The same money is spent, but a different person spends it. The same reasoning applies in the case of government borrowing. To the extent that the people or the banks who buy the government bonds would otherwise have spent the money or invested it in private industry, purchasing power is not increased but merely shifted. Moreover, to the extent that government bonds (with their tax exemption privilege) compete with industrial securities for the investors' funds, the expenditure of industrial companies for new equipment is delayed. It is the so-called "heavy industries" (manufacturing of machine tools, steel, and so forth) which make this new equipment. Furthermore, it is in these same "heavy industries" that the greatest volume of unemployment occurs during business depressions, and it is these industries which must stage a recovery if the unemployed are to be "reabsorbed into private employment."

We have said that only in the event that government funds (obtained through taxation or borrowing) would otherwise have remained idle will purchasing power increase through spending for relief. But why is it that funds remain idle? Ordinarily the only reason why either banks or private individuals retain cash in excess of their normal requirements is the fear that whatever investments they could make would turn out to be losses. The flotation of huge government bond issues may serve to prolong this period of fear. Everyone knows that sooner or later taxes will have to be raised to pay the interest and principal on these bonds. The question in everyone's mind is, then, "Who will be taxed and how much?" Certain industries which appear to be fields of favorable investment might turn out to be losers if heavily taxed. Other industries, depending on a luxury demand, may prove to be failures if heavy taxes on incomes cause people to economize by not buying their particular goods. In this connection, the immediate imposition of taxes for relief purposes would be less demoralizing to the investment market than government borrowing is, because soon after the taxes were imposed their effects could be noted and investment could then proceed on a basis of sound knowledge

The third method that we have mentioned—printing of new paper money for relief purposes—is open to still more serious objections than the other two As the new money finds its way into the banks, it will act as enlarged reserves on which a still greater volume of expanded bank credit can be created, and the subsequent depression will be even more violent than the one which the inflation was designed to relieve

These considerations do not lead us to the conclusion that relief should not be given Relief measures, however, should be regarded simply as what they are relief measures, and not means of stimulating business recovery Hence the relief measures should be kept to the necessary minimum so as not to interfere with the process of normal business recovery This points to the superiority of direct relief over work relief as being less expensive A further argument against work relief may be advanced Insofar as recovery in the building trades is being delayed by high prices of building materials and by high wages, government purchases of those materials will tend to prevent or to delay the necessary fall in prices, and government hiring of the workers (particularly if "prevailing wages" are paid) will tend to prevent or delay the fall in wages, thus retarding the resumption of building construction by private enterprises

If we wish to eliminate cyclical unemployment, rather than merely to devise relief measures when it occurs, we must direct our attention to devising ways of preventing the periods of inflationary prosperity which bring business depressions as their consequences

CHAPTER XXII

Social Security

THE PROBLEMS of provision for industrial accidents, unemployment, old age, sickness, death of the breadwinner of a family, and care for mothers may be grouped under the general head of the problem of social security In the days when society was characterized by the self-sufficing, or nearly self-sufficing, farm family, some of these problems did not exist and the others were handled in a more or less competent fashion by the family group itself, supplemented at times by the contributions of private charity In more recent times, changing industrial and social organization has (1) rendered the worker dependent on a money wage as practically the sole source of income, (2) reduced the size of the family and scattered it geographically, (3) abolished, or severely curtailed, child labor as a possible source of additional family income, and (4) resulted in periodic widespread unemployment Unemployment, in addition to being a problem itself, has rendered the worker less able to meet from his own income the other problems enumerated in the first sentence Private charity, although greatly expanded, has been unable to meet the added burden through lack of funds, inefficient administration, and because of the natural reluctance on the part of many people to accept charity Many private charities are also confined in scope by the conditions of the gift

Where workmen's compensation laws are in effect, the general practice is to make the employer responsible for "any accident arising out of or in the course of the employment" No proof of negligence is required All that must be shown is that the accident occurred on the job Where questions have arisen, the courts have generally been extremely liberal in interpreting these acts to the employee's benefit The American Association for Labor Legislation has drawn up a set of standard provisions which should be included in the best type of workmen's compensation law Some of the most important points may be briefly summarized

(1) Payment of all medical and hospital costs by the employer

(2) Payment for loss of working time due to accident at a rate not to exceed two-thirds of the regular wage (Full payment is not recommended, in order to avoid malingering)

(3) No compensation should be paid for a period of not less than three nor more than seven days at the beginning of the disability (The purpose is to cut down administrative and insurance expense on a large number of petty claims which result in no serious loss to the worker)

(4) Compensation for total disability The disabled workman should receive during disability 66⅔ per cent of wages, compensation not to be more than $25 or less than $8 a week, unless his wages are less than $8 a week, in which case compensation should be the full amount of wages If he is a minor, he should, after reaching twenty-one, receive 66⅔ per cent of the wages of able-bodied men in the occupation group to which he belonged

(5) Compensation for partial disability The workman who is only partially disabled should receive a percentage of his wages, proportioned to the degree of physical disability (taking into account age and occupation), and subject to readjustment only on account of changes in extent of disability

(maximum and minimum payments to be the same as under total disability)

(6) Compensation for death

(a) Funeral expenses The employer should be required to pay a sum not exceeding $150 for funeral expenses, in addition to any other compensation

(b) Compensation for widow or widower If living with the decedent at the time of death; or if dependent, they should be granted 35 per cent of the worker's wages till death or remarriage, with a lump sum on remarriage equal to two years' compensation

(c) Compensation for widow or widower and children In addition to (b), 15 per cent should be allowed for each child under 18, not to exceed a total of 66⅔ per cent for all dependents Compensation on account of a child should cease when it dies, marries, or reaches the age of 18

(d) Compensation for children with no surviving parent Twenty-five per cent for one child under 18, and 15 per cent for each additional child, to be divided equally among them and not to exceed a total of 66⅔ per cent Compensation to cease in the same manner as under (c)

(e) Compensation for other dependents Should be the same as under (d) except that such compensation should be paid only during dependency

(7) Employments to be included All employments should be included, only excepting those of casual workers in the service of employers who have no regularly employed workers

(8) Injuries to be included Compensation should be provided for all personal injuries in the course of employment, and for death resulting therefrom within six years, but no compensation should be paid where the injury is occasioned by the willful intention of the employee to bring about the injury or death of himself or of another The act should include *occupational diseases* which, when contracted in the course

of the employment, should be considered personal injuries for which compensation is payable

(9) Other remedies To avoid needless and wasteful lawsuits, no other claims for damages should be allowed to the worker If the employer has been criminally negligent, he can be prosecuted by the state under other laws

(10) Methods of insurance Employers may

(a) Maintain their own insurance fund subject to approval of the Accident Board or the state insurance authority

(b) Insure in a State Insurance Fund managed by the Accident Board upon the same principles and subject to the same general requirements as those governing Mutual Insurance Associations

(c) Insure in a mutual or stock insurance company which is subject to strict regulation by the state insurance authority

(11) Organization of the Accident Board The Board should consist of three or five members appointed by the Governor with the consent of the upper house of the legislature, and should have power to employ necessary assistants Its members should be required to devote their entire time to its work The entire cost of administration of the Accident Board should be paid out of a state appropriation

(12) Procedure Provision should be made for the determination of all claims for compensation, either by the Accident Board, or if the number of claims is large, by one member of the Board or an authorized deputy A decision by a member or deputy should be conclusive, unless appeal is taken to the entire Accident Board within a specified time Appeals from decrees of the Accident Board should not be allowed, except on questions of law, in which case they should be carried direct to the highest court

(13) Reports of accidents The Board should be required to use the Standard Accident Reporting Blank of the Ameri-

can Association for Labor Legislation, which is now in use for about half the industrial population of the country and requires full and accurate reports of all industrial accidents as a basis for computation of future insurance rates and future safety regulations to decrease or prevent accidents

(14) Rehabilitation Restored earning power is of more importance than is the distress relieved The administrative board should therefore be authorized to encourage, to co-operate with, or to conduct enterprises for the re-education and rehabilitation of injured persons

The reader may be interested in comparing his own state workmen's compensation law with this set of standards The most common defect to be found will be the exclusion of many classes of employees from the benefits of the act Typical classes often excluded are employees of small firms, agricultural workers, domestic servants, and employees of religious institutions If there is any justification for workmen's compensation, there is no justification for these exclusions The fact that accidents occur less frequently in some occupations than in others is no justification Insurance rates are extremely low for occupations with low accident experience The few employees who do happen to be injured or killed in the excluded occupations are just as injured and just as dead as those who come under the provisions of the act In general, the greater the number of workmen protected, the lower the insurance rates can be made.

Many arguments are offered in favor of workmen's compensation, some of them on ethical and some on economic grounds It is argued that injuries to workmen should be a cost assumed by the employer just as much as depreciation and wear and tear of capital equipment. Most workmen either are too improvident or earn wages too low to enable them to care for themselves out of savings or even by means of individual accident insurance policies Hazardous occupations often do not pay wages sufficiently higher than less hazardous occupations to compensate for the degree of risk involved, since workers either do not realize the risk or are overly optimistic If compensation is not provided, the burden of caring for the injured and their families will fall on the community It is argued that it is more equitable to place this burden upon the employer and/or the purchasers of the product who have the benefit of the services of the labor involved

The strongest argument for compulsory workmen's compensation is that it tends to reduce the number of accidents When each employer knows that each accident means a definite cost to him (either in the form of a deduction from his own accident reserve fund or in the form of higher insurance premiums), he has a financial incentive to reduce accidents Under the old Factory Inspection Laws, an employer would often try the effects of a ten-dollar bill in producing astigmatism in the factory inspector Where workmen's compensation laws are in effect, an employer often hires a safety engineer to find danger spots and to try to eradicate them A conspicuous example of what may be done to reduce industrial accidents has been given us in the construction of the Chrysler building Previous to this time it had been the almost normal experience that one life was lost for each story of a building above eleven stories A careful study was made of these accidents and the chief cause was discovered to be that of tripping over tools or materials left in the workers' way The engineers then made a schedule providing that no material was to be moved to any floor until it was ready to be used immediately They also provided for the immediate removal of all waste material and the picking up of all tools not in use The result was that this building, the tallest in the world when completed, was built without a single loss of life and without a single accident resulting in permanent disability Other industries have been able to show equally remarkable records when scientific safety methods have been employed In recent safety contests, some factories employing thousands of men have gone as long as two or three years without a single loss-of-time accident

It must not be assumed that the employer actually bears the full cost of workmen's compensation The passage of workmen's compensation laws, or their application to a new group, acts exactly in the same manner as the imposition of a new tax (See Chapter XXVIII) In some cases the insurance cost, or part of it, may be shifted forward to the consumer, and in other cases the cost may be shifted back to the worker Sometimes the employer may have to bear all or part of the cost himself This consideration, however, does not materially weaken the arguments for workmen's compensation If people demand products which are produced by hazardous methods (such as radium watch dials or highly explosive materials), it may be argued that they should be made to bear the added cost of insurance for workers Even where the cost of insurance is shifted backward to the worker, he is probably better protected at lower cost to himself than could be achieved by any other means

Unemployment Insurance

Some writers claim that unemployment insurance is exactly analogous to workmen's compensation insurance, and the plans for insurance which they propose offer many close parallels to some of the provisions of compensation insurance We may note at the outset, however, certain fundamental differences which make unemployment insurance a problem that must be considered on its own merits and which may suggest a somewhat different procedure

(1) The amount of unemployment that may occur in any one year is not subject to prediction within acceptable limits of actuarial accuracy

(2) Unemployment is well known to occur in large waves rather than evenly over a period of time. Points (1) and (2) both involve serious qualifications of the principles of fire or accident insurance. Fundamentally, fire and accident insurance involve the principle of paying current losses out of current premiums, plus the maintenance of a reasonable reserve fund to meet "unforeseen" contingencies. Unemployment, however, since it is characterized by wide and unpredictable fluctuations, would require either (a) the establishment of huge reserves relative to total insurance in force, or (b) ability to borrow to meet benefit payments in excess of receipts, or (c) periodic gifts to the fund by the government. While (b) and (c) are not necessarily poor solutions for the problem, they are distinctly outside the realm of insurance on an actuarial basis.

(3) While industrial accidents are usually capable of reduction by active effort on the part of the employer, unemployment is a matter which is largely beyond the individual employer's control. If there are any fixed costs, the employer already has a financial incentive to continue in operation if price of the product is above minimum variable costs. Even assuming that the full cost of unemployment insurance was actually borne by the employer, the ability to save all of a 6 per cent payroll tax (by maintaining full employment) might be sufficient to compensate for conditions which would otherwise indicate the layoff of about 6 per cent of the working force. When conditions are such that least loss will be incurred by running the factory at half or quarter of ordinary output, the possible saving on unemployment insurance becomes negligible as a stimulus to greater employment.

(4) In unemployment insurance on a national scale, the alternate accumulation and disbursement of sums running into billions of dollars constitutes a monetary problem which does not exist in the case of fire and accident insurance. Consider

the difficulties if unemployment insurance were handled on the same basis as private companies handle fire or accident insurance In times of nearly full employment there would be huge amounts of premiums to be invested The use of these funds to buy securities in the open market would tend to drive securities prices still higher than those in a "bull" market which ordinarily accompanies expanding employment Then when unemployment came, in order to pay out the benefits, large blocks of these securities would have to be dumped on an already declining market The possible losses which would be incurred might easily be so great that it would be better to hold the funds as hoarded cash Furthermore, the marketing of the securities in times of recession might easily contribute to a state of panic which would increase unemployment still further

(5) Any attempt to base unemployment insurance premiums upon risk experience will tend to place the heaviest burdens of added cost upon industries which may be least able to bear them Thus, public utility companies and others which have a very steady volume of business may easily be able to guarantee their workers a minimum of, say, 48 weeks' work a year and so avoid all payments Other industries, where the demand for the product fluctuates more, would be saddled with heavy costs This might be desirable if the employer could readily reduce unemployment, but we have already seen that this possibility is sharply limited

The Real Nature of Unemployment Insurance

The above discussion would lead us to conclude that unemployment insurance can hardly be called insurance in the ordinary sense of the term What is it then? Properly speaking it more nearly approaches the status of systematic unemployment relief As such, there are many arguments in its favor (1) It tends to treat all unemployed workers (who are covered by the plan) on an equal basis (2) It removes the stigma of charity from the benefit payments (To further this end it is probably better to keep on calling it "insurance," even though the term is inaccurate) (3) It gives us a means of keeping an accurate count of the unemployed which is currently up to date and may be used as a means of guiding other government policies (4) If used on a national scale, it may be a better means of distributing the burden of caring for the unemployed than throwing the burden on the local community (5) Regardless of the plan of raising the funds, contributions to the fund are apt to be more equitable than those of private charity

Coverage of Unemployment Insurance

Unemployment insurance cannot be considered separately from other forms of relief The indigent who are not cared for by unemployment benefits will constitute a "residual relief load" which must be cared for by other means If the Federal Government "turns the relief problem back to the states" as some people now advocate, there will be a heavy burden of "residual relief" for the state and local communities to handle If unemployment benefits are to constitute the "first line of defense," this suggests that as many occupations and as many people as possible be covered by unemployment insurance When a local community is suffering from heavy unemployment, the possibilities of raising revenue locally from real estate taxes, income taxes, or even sales taxes, are seriously curtailed The imposition of a heavy residual relief burden, if unemployment insurance coverage is unduly restricted, will thus tend to fall on the local communities at times when they are least able to bear such a burden The present Social Security Act probably provides too many exemptions In particular, the exemption of employers with less than eight employees permits evasion by some industries which might properly be included in the plan For example, some gasoline companies and chain stores have already adopted the expedient of "leasing" the units to the man who was formerly the hired manager Thus all the stores and gas stations having less than eight employees in the individual units are exempted from the plan, although the total number of such employees may run into the thousands

Somewhat the same general criticism may be offered against the arbitrary limitation of the length of the benefit periods (The Social Security Act places a limit of twelve weeks) The general theory of such limitation is to keep the plan "solvent," that is, to pay benefits only from payroll taxes and workers' contributions Considered in terms of the total relief load, however, such solvency is only technical Those workers who happen to be out of work longer than the allotted period are simply given into the care of some other agency The time limitation is no guarantee against malingering, and this problem can be better handled by other means

Amount of Benefits

Almost every consideration dictates that the size of the unemployment benefit should closely approximate a bare subsistence level This will be the best guarantee against "loafing on the dole" and the strongest inducement for a man to hunt a job for himself rather than to wait until one is offered him It also makes it possible for the funds to cover a wider number of cases and to reduce the burden of residual relief If a subsistence standard is adopted, it should, of course, take into account the number of dependents on the worker Some advocates of large benefits base their argument on the "maintenance of consumer purchasing power" The consumer purchasing power theory is itself open to question, but even if it were valid, when the total amount of funds is limited, consumer purchasing power cannot be enhanced by giving higher benefits to fewer people rather than small benefits and wide coverage

Methods of Raising Funds

Most economists seem to be agreed that either all or a great part of a payroll tax for unemployment insurance will be eventually shifted to the worker Since this is a tax which varies not with output, but with the amount of labor used and the amount of wages paid, it does seem logical that the tax will be shifted to the worker (See Chapter XXVIII) If this is substantially true, there is much to be said in favor of having the worker pay such a tax directly rather than through a "concealed" wage reduction, direct payment by the worker helps to maintain the idea of insurance rather than charity If the workers realize the share they are paying, there might be a tendency to reduce political pressure for higher benefits There also might be motivation to bring social pressure against those individuals who are known to be malingering

Workers' contributions alone, whether made directly or in the form of a payroll tax on the employee, will not be sufficient to support an unemployment benefit program unless there is a long period of full, or nearly full, employment before a depression occurs The contributions will be still less adequate to meet an emergency if they are segregated in the funds of the several states, and within the states are still further segregated by industries or individual firms (a practice allowed by the Social Security Act) Two alternatives are thus left open to the government if the unemployment relief problem is to be adequately handled (1) It may supplement the unemployment funds out of general revenue or by borrowing in periods of depression (2) It may provide other agencies such as PWA, WPA and the like to care for the residual relief load The second alternative is the one to which we are apparently committed by present legislation

There is much to be said for a national system of unemployment insurance, plus alternative (1) If insurance were on a national basis, it would promote more mobility of labor (Under the present Social Security Act there is danger that workers will have to remain within a particular state or even in the employment of a particular firm in order to be eligible for benefits) It would also permit a more even distribution of the costs and a closer balancing of receipts and payments, and there would be the possibility of continuing unemployment benefits for longer periods of time in individual cases and localities than is possible under a segregated system The supplementing of the funds by Federal borrowing in periods of severe depression would permit the further extension of unemployment benefits rather than make necessary so extensive a resort to other forms of relief If sound public works projects are available, they can be used to take workers from the unemployment insurance roster If not, continuation of unemployment benefits will certainly be less expensive (and perhaps no more demoralizing) than "made work" projects

Unemployment Provisions of the Social Security Act

The Social Security Act (Public No 271, 74th Congress) does not itself provide a system of unemployment insurance but gives aid to those states which do set up such systems, and (in effect) penalizes those which do not The method is the imposition of a Federal tax (to be paid exclusively by employers) of 1 per cent of all wages and salaries in 1936, 2 per cent in 1937, and 3 per cent for all subsequent years In states where there are unemployment insurance systems approved by the *Social Security Board,* the employer may claim an exemption from the Federal tax of the full amount paid to the state system up to nine-tenths of the amount of the Federal tax Therefore, in states which do not have approved laws, employers will still have to pay the tax but the states will be receiving none of the funds to help with their unemployment relief problems

Certain exemptions are made Employers who have employed fewer than eight workers are exempted regardless of the nature of the firm In addition, exemptions are provided for (1) agriculture, (2) domestic servants in a private home, (3) shipping on the navigable waters of the United States, (4) services of members of the immediate family, except children over 21, (5) employees of the Federal Government or its agencies, (6) employees of a state government or its subdivisions, (7) nonprofit agencies carried on for religious, charitable, scientific, literary, and educational purposes

Certain minimum standards to which state laws must conform to receive approval are provided

(1) Benefits to the unemployed eligibles must be paid through public employment offices in the state or through such other agencies as the state may approve (This is the wisest provision in the act)

(2) No payments may be made until two years after the state plan has been established

(3) All funds received by the states shall be deposited with the Secretary of the Treasury to their credit in the Unemployment Trust Fund

(4) All funds withdrawn by the states from the trust fund must be expended in the payment of unemployment compensation

(5) The states must make such reports in such form and containing such information as the Board may require

(6) Compensation shall not be denied under the state law to any otherwise eligible individual for refusing to accept new work under any of the following conditions (a) If the position offered is vacant due directly to a strike, lockout, or other labor dispute, (b) if the wages, hours, or other conditions of the work offered are substantially less favorable to the indi-

vidual than those prevailing for similar work in the locality, (c) if, as a condition of being employed, the individual would be required to join a company union or to refrain from joining any bona fide labor organization

Additional credits Where permitted by the state law, an employer may claim a credit up to 90 per cent of the Federal tax, in lieu of contributing to a state fund, by (a) establishing his own unemployment reserve fund under approved conditions, (b) joining with others in the establishment of a reserve fund for an industry or local group of employers, (c) guaranteeing thirty hours of wages for forty calendar weeks (or more, with one weekly hour deducted for each added week guaranteed) in each twelve months

So long as they conform to the minimum requirements of the act, the states are thus allowed a considerable amount of freedom in developing their own plans for unemployment insurance After the plan has been in effect for a while, the comparative experience with different plans will probably lead to greater uniformity among the state plans than exists at present One achievement of the law is that it prevents any industries covered within any state from profiting competitively against other states by not having unemployment insurance or by having plans which are seriously substandard as compared with the others

Old-Age Pensions

A growing need for some form of care for the indigent aged has become apparent In the past such care has been provided by the local or county poorhouses plus some pensions or cash relief provided by some few states or local authorities Most state laws have also attempted to compel close relatives to care for aged dependents when they were financially able to do so In times of prolonged depression, however, the latter alternative has been of little help since large numbers of unemployed workers have been unable to care for themselves, to say nothing of other dependents

The Social Security Act provides that the Federal Government will match state contributions for old-age pensions dollar for dollar up to a maximum of $15 per month contributed by the Federal Government In other words, of all pensions totaling $30 or less, the Federal and state governments will each pay half On pensions of more than $30, the Federal Government will pay $15 and the state will pay the balance The same plan is also made available to local and county governments (some state constitutions specifically place relief in the hands of the local authorities), but such local plans must be under the supervision of a state authority which is, in turn, responsible to the Social Security Board In order to qualify for these pensions, the recipient must be shown to be in actual need, other sources of income may result in a reduction of the amount of pension granted

Old-Age Insurance and Annuities

A sharp distinction must be kept in mind between old-age pensions and old-age insurance and annuities The former are solely a form of relief and are granted on the basis of age and need, without regard to previous occupation The annuities, on the contrary, are paid solely on the basis of past contributions to the fund and without regard to the wealth of the individual (He must, however, leave gainful employment in order to start receiving the annuity) The entire administration of insurance and annuities is in the hands of the Federal Government

The taxes for old-age insurance are levied on all employments except those specifically excluded The exemptions are about the same as those listed for unemployment insurance, except that establishments with less than eight workers are not exempt and no tax is levied on the amount of any individual wage which exceeds $3,000. As provided in the original act, the schedule of payments is as follows

PER CENT OF TAX ON ALL WAGES AND SALARIES OR PART THEREOF WHICH IS $3,000 PER YEAR OR LESS

Year	Payment by Employer	Payment by Employee
1937–1939	1 0%	1 0%
1940–1942	1 5%	1 5%
1943–1945	2 0%	2 0%
1946–1948	2 5%	2 5%
1949 and after	3 0%	3 0%

This scheme of collections will mean that estimated receipts plus interest will exceed disbursements for most of the earlier years by such an amount that the reserve fund will reach an estimated maximum of 47 billion dollars in 1980 Since the funds must be invested in Federal Government bonds which yield 3 per cent (the Treasury to issue special bonds for this purpose if necessary), interest payments will have to come out of the general government funds The interest, or at least a part of it, is thus a "concealed subsidy" If the Treasury does not spend the proceeds from the sale of the bonds to the fund, the effect is deflationary If it does spend the funds, either new taxes or new borrowing will have to be used to repay the money when the annuity payments begin to exceed the payroll taxes To avoid this, an amendment has been proposed in Congress which would "freeze" the taxes at 1 5 per cent per worker and employer until such time as the taxes are actually needed to pay out the annuities

The annuity payments under the fund are based on the total amount of wages which have been taxed to provide the income for the fund On income which has been received under the plan (and on which the payroll tax has been paid), the monthly annuity is to be ½ of one per cent on the first $3,000 of income, 1/12 of one per cent on the next $42,000 and 1/24 of one per cent on all over $42,000, but the maximum monthly annuity shall not exceed $85 If the insured worker dies before he reaches the age of 65, his estate shall receive a sum equal to 3½ per cent of the income on which annuities are calculated If he dies after age 65 and the total annuities which he received while living do not equal 3½ per cent of the insured income, his estate shall receive the difference between the total payments he did receive and the sum represented by such 3½ per cent

Other Grants

In addition to unemployment insurance and old-age pensions, the Social Security Act provides for grants to the states for care of dependent children, for mothers' pensions (maternal and infant care), for crippled children, for rehabilitation work, and for public health services Some of these features require state contribution and others do not, but in no case is it necessary for the state to match the Federal contribution dollar for dollar

General Aspects of Social Security

Most of the arguments for social security legislation rest upon ethical or humanitarian grounds which we need not question here The most important economic question is, "How much social security benefits can we afford?" With very little exception, all social security benefits are paid to people who are not working and who therefore are not producing any wealth for the community We are already approaching the limits of returns from the "soak the rich policy" to support present forms of Federal, state, and local expenditure It follows that the costs of the social security program will fall mainly on those who are employed in the middle and lower income classes Only a few provisions (such as those for public health and child care) offer any possibilities of increasing the productive power of future generations The provision against any gainful employment for those drawing old-age annuities prevents them from making any contribution to material national wealth. (This provision was intended to make jobs for younger workers and might be withdrawn if we reach full employment.) As time passes, the whole net effect of the legislation will be to increase the proportion of national money income which is spent on consumption. In the case of the old-age insurance, present money-spending on consumption is decreased in favor of greater spending in the future when the annuities are received. Much more important than money, however, is the question of goods. If less goods are consumed now, will there be more goods available for future consumption? We could produce more goods now and save them till later, but this is not advisable as we do not know what forms of goods will be in demand in the future. Raw materials can be saved for future generations by not consuming them now, but this does not apply in the case of labor. The only way in which present labor-power can be saved for the use of future generations is to use the labor now in the construction of tools, machinery, buildings and other capital equipment which may be used to increase the productive capacity of labor in the future. In times like the present, when there is a deficiency of private investment for these purposes, it follows that there is a grave responsibility for the government to invest the receipts from payroll taxes in ways which will tend to increase the future productive capacity of the nation rather than to fritter away the labor-power in "made work" projects. Either this must involve more "government competition with private business" or means must be found by which the government can make loans to private business for the purpose of expanding capital equipment. Some people may not like either of these alternatives, but we cannot tell labor to take a vacation and then expect to find any product of labor when the vacation is over.

Even with government investment in capital improvement, we still have the question of how many people we can support in idleness while the others work There is no easy or definite answer to such a question The implication is rather that we should wait until the present legislation has had a chance to demonstrate some of its effects before adding further commitments to be fulfilled in the future

CHAPTER XXIII

Interest

INTEREST is the price paid for the use of loanable funds Loanable funds may be used either for the purchase of consumers' goods or as capital in the process of production It is with the latter use that we shall be chiefly concerned, although we cannot overlook the fact that the demand for loans for consumptive purposes will have an influence on the rate which producer-borrowers must pay

Money capital is demanded chiefly because it confers on its possessor the power to command the services of the means of production Such power may be used to buy the services of the *original* means of production—land and labor—through the payment of rent and wages, or it may be used to buy *intermediate goods* such as raw materials, semifinished goods, and buildings and machinery, in which the past services of land and labor are embodied Such intermediate goods are often called *capital goods*

When capital is invested in payments to various kinds of labor, or in raw materials and semifinished goods, in such a way that it *will be fully recovered when a unit of the product is sold*, it is ordinarily called *circulating capital or working capital*

When capital is invested in plant, machinery, and equipment, or in labor devoted to maintenance and upkeep, so that *only a part of such capital will be recovered in the sale of a unit of the product,* then such capital is usually called *fixed capital.*

The fact that the businessman must be able to recover such investments (either quite soon in the case of circulating capital, or in installments over a period of time in the case of fixed capital) in order to induce him to remain in business and to continue at the same rate of output is too obvious to need further explanation It is true, of course, that quite often either a part or all of the invested capital is lost But no one would invest, either in his own business or by loaning to others, if he were certain in advance that such losses would occur When sad experience demonstrates that investment has been ill-advised, the attempt is made to contract or withdraw such investment in such a manner as to involve the least loss possible

What does require an explanation is the fact that many businesses, even highly competitive ones, return *more* than the capital invested We must therefore explain why, after all other costs have been met, there is a surplus in the form of *interest* that is either paid to those from whom capital has been borrowed or pocketed by the owner if he has invested his own capital

Physical Productivity of Capital Goods Does Not Explain Interest

The services of land and labor, used in such a way that they are employed partly in the making of capital goods and partly in combination with capital goods, yield a greater *physical* product than the same amounts of land and labor services would yield if they were used entirely in making a product without the use of capital goods This is an obvious technological fact which we can leave to the physicist and the chemist for explanation For the purposes of economics, we can take it for granted that a man can catch more fish if he first takes time to make a pole and line or a net than if he devoted his entire time to trying to catch fish by hand

Similarly, we know that a greater physical product will result from agriculture through the use of farm implements and fertilizer than through the use of labor and land alone Many kinds of products could not be turned into their present form at all without the use of at least some capital goods Thus blast furnaces are required to make steel, stills to extract gasoline from crude petroleum, and so on The *value* of the marginal physical product must at least equal the price

None of this, however, constitutes a satisfactory explanation of why the use of capital goods should yield a *value* return over and above the cost of the services of labor and land embodied in the capital goods used by a competitive industry Unless there is some force which restrains all competitors, we should naturally expect them to expand output, by using capital goods, up to the point where a declining price of the product is just sufficient to cover the costs of the services of labor and land involved in making the capital goods and those used directly in making the product If lenders were willing to loan unlimited sums of money without interest, this would indeed be the case, and there would be no limits, except purely technological ones, to the extension of the use of capital goods Capital goods would be substituted for labor in existing industries to the limits of mechanical feasibility, and new enterprises requiring tremendous amounts of investment would be undertaken (Interest on invested capital would not be a cost)

Why Interest Must Be Paid

If it can be shown, however, that interest is a cost that must be considered by all businessmen, then we will have found a brake which stops this expansion of output and this extension of the use of capital goods If interest is a cost that must be paid, then competitors in an industry will cease to expand output at that point where a falling price is just equal to all costs *including interest,* and they will not expand output to such a point that the lower price of a larger output fails to cover interest charges. As long as interest must be paid on all borrowed money capital, all competitors are safe in so restricting output, since no new competitor of equal efficiency who enters the field with borrowed money capital can afford to cut prices below theirs. Even if some few competitors who were using their own funds should decide that they did not care to earn interest on their money, they would find that, unless they could supply the entire market, other people who bought goods from them at a price which included no interest could resell those goods at a price equal to that charged by the interest-paying competitors. Indeed, interest-paying competitors would themselves be likely to be the first to take advantage of such an opportunity to buy goods at a lower cost than their own and to resell them at a profit.

If it can be shown that interest must be paid on borrowed funds anywhere at all in the economic system, then we shall be able to show that interest must be considered as a cost by all men who attempt to start a business enterprise. Even though there might be some lenders who would be willing, if no other opportunity presented itself, to loan at zero interest, so long as any borrower is willing to pay interest, these lenders will naturally prefer to loan to such borrowers as pay interest rather than to those who do not.[1] Indeed, even though some lenders would be willing to loan without interest if they had to, so long as anyone is willing to pay interest, even these lenders insist on receiving it. This is simply another way of saying that as long as the amount of funds demanded is in excess of the amount that would be offered at zero interest, there will be interest charged on all loans. Furthermore, as long as interest is being paid on borrowed funds, anyone who invests his own capital in his own business will have to consider the *opportunity cost* of doing so Thus, if someone is willing to pay me interest for the use of my money, I will want to make sure that it will earn at least an equal rate of interest before I invest it in my own business

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[1] If funds were obtainable at zero rates for unlimited amounts, for an unlimited time, it would be worth while to build a bridge across the Atlantic.

Time Preference and Liquidity Preference

We have now to explain why most people insist on being paid interest and would not loan at all without it The answer to this is found in what is known as *time preference*[2] and *liquidity preference*[3] Time preference is the preference to have an equal amount of goods and services at one time rather than at some other time We shall find that most people would rather have an equal amount of goods and services in the present rather than in the future, and that they would rather have such goods in the near future than in the distant future We say that such people have a *positive* rate of time preference If it should so happen that some people prefer to have an equal amount of goods in the future rather than in the present, we say that such people have a *negative* rate of time preference Liquidity preference is the preference to have an equal amount of cash rather than of claims against others

We must now examine the reasons for these time and liquidity preferences If I were to offer you the choice between receiving one dollar now and receiving one dollar a year from now, probably you would say, "Give it to me *now*" Why is this the case? One reason, of course, is that if I gave you the dollar now, you would be sure of having it, whereas if you waited until next year I might fail to give it to you This element of risk is one that we shall have to deal with later, but for the moment let us assume that I can give you a satisfactory guarantee that you will receive your dollar next year

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[2] Bohm-Bawerk

[3] J M Keynes

Doubtless you would still prefer the dollar now to the certain guarantee of a dollar a year from now, and this must be explained The answer is that you can think of very many desirable things for which the dollar might be spent immediately, whereas the wants which might be satisfied by the expenditure of a dollar next year do not seem nearly so important at present In other words, you have a *positive rate* of *time preference*

Now, if I should try to borrow a dollar from you with the guarantee that it will be returned next year, what I am really doing is offering to exchange future purchasing power for present purchasing power If your rate of time preference is positive, in order to induce you to make such an exchange, I will have to offer to pay you next year some amount greater than one dollar The greater amount will have to be large enough so that the satisfactions which you think will be derived from spending or having this sum in the future will be at least equal to the satisfactions you give up in the present by lending the dollar to me instead of spending it or keeping it

Time preference is quite analogous to perspective in space[4] Whoever has stood on a railroad track has noticed how the ties appear to be shorter the more distant they are from the eye The same thing is true of the dollar which you will get back one year from now if you lend it to me, except that instead of being distant in space it is distant in time What I am doing is offering to trade you a future dollar in return for a present dollar If your realization of your present wants is greater than your anticipation of your future wants, a dollar in the future will not appear as big to you (in its power to satisfy wants) as a dollar in the present In order to make the future dollar appear as big to you now as the present dollar does (so that you will be willing to make the trade), I must add something to it That something is interest Your *un-*

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[4] I am indebted for this analogy to Prof J M Shortliffe

dervaluation of future purchasing power as compared with present purchasing power forces me to promise you a greater amount of future purchasing power so that your estimate of anticipated satisfactions from the sum that I will pay you back next year will be at least equal to the present satisfactions which you would give up if you lent me the dollar instead of keeping it or spending it now The difference between the amount you lend me and the amount I must pay you back, expressed as a percentage of the original sum lent, is your *rate of time preference* Thus, if you insist on receiving $1 25 next year in return for lending me $1 00 today, 25 per cent is your rate of time preference

The rate of time and liquidity preference, and consequently the rate of interest at which people could be induced to lend, will be different for different individuals, depending upon their particular circumstances and upon their psychological make-up Ordinarily, people who are farsighted enough to anticipate fully what their wants will be in the future will have a lower rate of time preference than those who live entirely in the present and take no heed of the future Many people, indeed, attach so much importance to having goods immediately that, far from being willing to lend, they borrow to buy consumers' goods and pay rates as high as 20 per cent to "loan sharks" or installment plan stores rather than wait until they have saved the cash to pay for the goods Mere knowledge of what future wants will be is not sufficient to induce a low rate of time preference In order for his rate of time preference to be low, the individual must have sufficient imagination to anticipate the intensity of his wants in the future Shipwrecked sailors may know that they will die of thirst before help can reach them if they drink up their supply of water too rapidly, but unless they can anticipate what the pangs of thirst will be in the future, they will clamor to drink all they want today

Differences in present and anticipated future *income* will also affect the individual's rate of time preference, as well as differences in present and anticipated *wants* A youth with a small income who expects to receive a large inheritance when his wealthy uncle dies will have a very high rate of preference for present purchasing power over future purchasing power On the other hand, a man who is working for a good salary at present but who expects to be retired a few years hence, either on half pay or with no pension at all, will have a very low rate of preference for present purchasing power Indeed, if he anticipates his future wants keenly enough, he may actually prefer a certain amount of future purchasing power to a similar amount of present purchasing power If he does, his rate of time preference will be negative If no opportunity for safe investment was available, instead of insisting on receiving interest he might be willing to pay someone to keep his funds safely and to return them to him when they were more needed In a way, this payment might be considered as a sort of negative interest rate

Another element that will influence an individual's rate of time preference is his expectancy of life If he anticipates that he will not have long to live, he may prefer to have his purchasing power in the immediate present when he can enjoy it rather than to defer the use of it until some future time when he may possibly not be alive A consideration which would tend to offset this in the case of some people would be the desire to leave an inheritance to care for their dependents

After all other considerations have been taken into account, the preference of any individual for present purchasing power will be greater, the greater the amount which he is lending For example, there may be a very small part of my present income and cash balance that I am not spending at all or that I am spending for present goods whose marginal utility to me is extremely low This small part of my income and cash balance I might be willing to lend for no interest on the mere assurance that I would get it back in the future (of course, I would take interest if I could get it, but if no borrower anywhere was paying interest, I would be willing to loan this small sum without interest) However, as soon as I start to consider the lending of still more of my income and cash balance, then the goods which I would have to give up in the present will be those which are increasingly important to me In other words, the greater the amount of the loan in proportion to total income, the greater the sacrifice of present liquidity and the greater the marginal utility of the present goods whose purchase must be foregone in order to make the loan At the same time, as I consider deferring more and more purchasing power to the future, the uses to which I anticipate that I can put that future purchasing power will be steadily declining in importance Thus, the greater the amount of the loan, the less will be my estimate of the marginal utility of the goods which I might purchase in the future or of the dollars which I might care to leave to my heirs Consequently, the greater the amount of the loan, the greater the rate of interest I will insist on receiving to compensate for my increasing time preference

Certain elements of liquidity preference must be considered entirely apart from time preference (1) There is the desire to have a sum of money on hand to meet accidental emergency payments[5] For example, consider the extra twenty or thirty dollars I may take along on a motor trip to cover possible repairs on the car I do not want to spend this money and I hope that the occasion for spending it does not arise Nevertheless, I would much rather have it in the form of cash than to have it in the form of a claim of debt against someone else, since an unfamiliar garage man would probably not be interested in accepting such a claim in payment for his repair bill (2) A desire for liquidity may be fostered when it is anticipated that interest rates will rise in the near future For instance, suppose that I buy a bond for $100 00 which pays $3 00 a year interest, and that the market rate of interest for this type of investment then rises to 6 per cent Nobody would then be willing to pay much over $50 00 for my bond, since he could invest $50 00 at 6 per cent elsewhere and get a return of $3 00 a year I may receive my $100 00 back if I wait a number of years until the bond is due, but meanwhile I shall have to be content with 3 per cent on my bond while others are earning 6 per cent, or if I sell out, I will be compelled to sell at a loss If I anticipate any such rise in the interest rate, I would do well to keep my funds in the form of liquid cash until after the rise

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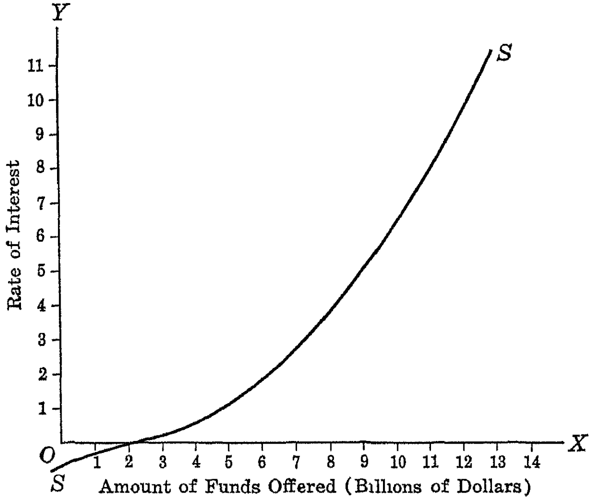
[5] Hicks explains interest simply in terms of the imperfect "Moneyness" of mortgages, stocks and other "Money substitutes "

Supply of Loanable Funds

Time and liquidity preference, then, determine the amount of loanable funds which will be offered by lenders at each possible rate of interest It will also determine the amount of owned capital that an individual will invest in his own business In this respect he may very properly be considered as loaning to the business, even though he owns the capital himself Thus, if I use my own money to pay the workmen in my business, I will not be able to get it back until I can sell the goods which they have made, and I am deprived of using it for myself exactly as if I had loaned the money to someone else for the same period of time If my own time and liquidity preference is lower than the market rate of interest, I will invest my own funds in my business rather than borrow capital Obviously, however, I will not starve myself to provide capital for the business If the business shows a profitable opportunity for the investment of a greater amount of capital than I can provide without stinting myself, I will borrow the extra capital required and will still retain some of my own funds for personal expenditures and personal cash balance

If we know the rates of time and liquidity preference of each individual for various amounts of funds that he might loan, then we can draw up individual supply schedules of the amount of money that each individual lender would loan at each possible rate of interest By adding together the supply schedules of all individuals, we obtain a supply schedule of loanable funds for the general market We can represent this as a supply curve exactly as we did with the supply of any other commodity



Supply of Loanable Funds

In the diagram, *SS* represents the imaginary supply curve of loanable funds Note that it starts below the zero line, thus indicating that some few people would be willing to loan a small amount at negative rates of interest This curve coincides with the zero line, indicating that there are some people who would be willing to loan at least a part of their funds at zero interest on the mere assurance that they will get their money back It then starts to slope upward and keeps on increasing its slope, thereby indicating the rates of interest necessary to induce the same people to loan more of their funds and to induce other people with higher rates of time preference to start loaning It may even curve backwards

If the supply of loanable funds were determined by the rate of time and liquidity preference of lenders, then the market rate of interest would be determined by the amount of funds which the borrowers wish to obtain The market rate of interest will be that rate at which the amount offered by lenders is exactly equal to the amount borrowers will take. The market rate of interest is therefore a market price for loanable funds, quite analogous to the market price of other commodities It is a sensitive market price, owing to the extreme ease with which money can be transported from one place to another, and hence the money market is apt to be far more competitive than many commodity markets If the supply of loanable funds happened to be that shown in our diagram, then, if all borrowers wanted a total amount of only two billion dollars, they could obtain it without paying interest at all If they wanted nine billion, they would have to pay 5 per cent for it If they wanted twelve billion, they would have to pay 9½ per cent, and so on

Bank Influence on Supply of Funds

We have been assuming up to this point that the only source of supply of loanable funds was from savers Where a banking system exists, however, the chief source of loanable funds will be the banks rather than savers Furthermore, it will be shown in Chapter XXIX that the banks are able to *create* money for the purpose of lending it What the bank ordinarily lends is not coin or currency but claims against itself in the form of bank deposits or bank notes With a given amount of cash, the banks in a banking system may loan in the form of bank credits many times the amount of cash on hand Such cash may come from savers, but there are many other ways in which the banks receive cash All this will be made clear in Chapter XXIX on Credit Control and Banking Mechanism

The important point for us to note here is that where there is a banking system, borrowers will not have to borrow from savers but may borrow from banks Moreover, the amounts that banks are lending may be, at times, greatly in excess of the amounts which are saved by individuals The banks themselves will have no time preference, their choice is merely between lending or having idle lending capacity that is earning them nothing The more that they are able to lend at any given rate of interest, the greater will be their earnings This situation results in "involuntary" saving due to changes in price levels caused by bank lending and expansion of deposit currency[6]

While banks will have no time preference, they will be governed by liquidity preference A certain part of the claims against banks must be paid in cash on demand No bank willingly puts itself in the position of being unable to meet such claims Consequently, if a bank anticipates that cash will be difficult to obtain in the future, it will raise its rate of interest so as to discourage further loans and thereby put itself in a more liquid position Moreover, if a bank anticipates that the rate at which it can lend will be higher in the future, it will be less anxious to lend now When this situation exists, it will usually be found that the bank rate on short-term loans is much lower than on long-term loans

There are certain factors of monopsonistic competition in the borrowing of funds Thus, certain persons who are known to be good credit risks, those with wealthy parents and those with some influence at the bank, may obtain loans at lower interest rates or with less difficulty than others

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[6] See pp 663–666 for a definition of 'involuntary saving"

Demand for Loanable Funds

We must turn, then, to the demand side of the market and find out what it is that determines the amount of loanable funds that borrowers would take at various possible rates of interest As far as those who borrow for consumptive purposes are concerned, the rate of interest they would be willing to pay for any particular amount of money depends on their time preference If their present wants seem very much greater to them than their anticipated future wants, they will pay a high rate of interest in order to add to their present purchasing power, even though they know that their future purchasing power will be diminished by the necessity of having to repay the amount of the loan and the interest As we shall see later, due partly to the fact that lenders consider this type of loan more risky, borrowers who use funds for increasing their consumption will have to pay a higher rate of interest than other borrowers

The great bulk of loanable funds, however, is borrowed for investment in production The rate that borrowers for this purpose will be willing to pay will depend on the profits above all costs except interest expected from organizing or expanding any business This rate will depend upon the marginal value product of capital Anyone who expects to make a profit by investing will, if necessary, be willing to pay for the use of money capital Furthermore, if no one would loan for less, he would be willing to pay such a rate of interest as would just fall short of taking away his entire profit Let us imagine, for example, that there is a certain business in which, after all other costs (including my own wages of management) *except* interest have been allowed for, I estimate that $6,000 00 a year profit can be made safely If such a business requires an investment of $100,000 00, then $6,000 00 represents an annual return of 6 per cent Consequently, I could obtain a clear net return even *after paying interest,* provided I can borrow the money capital at any interest rate below 6 per cent Therefore, I would be willing to pay any market rate of interest less than 6 per cent rather than fail to obtain the capital If the market rate is a full 6 per cent, I will not know whether I should start such a business or whether I should earn my wages of management by working for someone else. If $8,000 00 a year could be made on $100,000 00 capital, I would be willing to pay up to 8 per cent interest, if $9,000 00, I would pay up to 9 per cent, and so on

The expected rates of returns, then, are the determining factors in setting the rates of interest that commercial borrowers will be willing to pay for loanable funds However, regardless of his rate of returns no borrower will have to pay more than the market rate of interest, competition among lenders will assure this It is the marginal borrowers and the marginal lenders who set the rate of interest The actual rate will be at that point where the amount borrowers are willing to take is equal to the amount that lenders are willing to loan Notice, however, that where a banking system is in operation, there may be extreme variations in the supply of loanable funds from time to time

Yet no rate of returns in excess of the market rate of interest can persist long in any industry In any industry where competition is possible, any rate of returns above the market rate of interest will tend to attract more firms into the industry This competition will make its effects felt in three ways the greater output of product will cause a decline in the price of the product that will decrease the rate of returns, the greater demand for suitable means of production will cause a rise in cost that will decrease the rate of returns, and the increased number of borrowers demanding money capital will tend to raise the rate of interest, and the increased amount of capital used will tend to lower its marginal physical product Where competition increases in response to excess profits in one industry alone, most of its effect will be felt in the decline of returns in the industry, and little or no effect will be observed on the interest rate But when a number of industries are showing profitable opportunities for investment, the interest rate will tend to rise If some time must elapse before the output of the new competitors in these industries can be put on the market, the interest rate will be likely to rise before any fall in the price of products occurs

Notice that what we have been saying is merely that the returns in a business must *promise* at least to equal the interest rate in order to induce borrowing and investment *After* the investment has been made, there is no guarantee that even interest charges will be earned, as many businessmen and lenders have learned to their sorrow If, attracted by large returns, too many competitors rush into an industry in ignorance of the fact that others are doing the same, their combined output may drive the price so low that no one is able to earn his interest charges

Disinvestment of Capital

In such circumstances, if the capital is invested in fixed forms of capital goods suited only to the particular industry (such as specialized machinery and equipment), it may be found impossible to withdraw invested funds from the business without encountering a greater loss than would be occasioned by leaving them in that business Actually, the only way to get such funds out immediately is to sell the capital goods in which they have been invested But if the price of the product is such that a machine cannot be used to earn its interest charges, no one else who buys the machine would be likely to be quite so foolish as to pay what the machine originally cost (or even the original cost less depreciation)

Anyone who calculated correctly and who bought the machine at secondhand would pay only such a price for it as would allow him to earn interest charges on it at the present low price of the product Consequently, the owner of the business may be equally well (or badly) off if he keeps the machine in operation until it can return a part of its original cost through the sale of the product

At first sight, it would appear that working capital could be withdrawn from a business far more easily than fixed capital, and in general this is true Whatever part of the working capital is recouped in the price of a unit of the product when it is sold need not be re-invested by paying wages or buying a stock of goods or raw materials, unless the owner so desires However, when there is a large amount of specialized fixed capital in the business, the owner may find it necessary to re-invest very nearly the same amount of working capital in order to recover some part of the value of the fixed capital by using it in production (Machines need labor to run them and raw material on which to work) For this reason, retail stores can go out of business completely much more easily than manufacturing establishments, simply because the retail stores have most of their capital invested in the form of circulating or working capital rather than fixed capital

When any business does not pay its interest charges, the creditors can legally take the business away from the owners by foreclosure or bankruptcy proceedings, but this merely makes the former creditors the new owners of the business Unless they can manage the business better than the former owners did, they will receive no more interest than they did before the foreclosure As owners, they may get only 2 per cent on their investment while the market rate of interest may be 6 per cent Nor will there be anything they can do except either to continue running the business or try to withdraw their investments at a loss in the manner outlined above If they (or someone else to whom they may sell the business) continue to operate it, the amount of product that they put on the market will help to keep the price depressed so that the other competitors in the industry will be in no better position to earn their interest charges than they were when this particular firm was in the original owner's hands

Once industry has fallen into a condition wherein all of the firms are failing to earn their interest charges, there are only a very few things that could happen to restore their collective ability to earn interest These are (1) for some of the firms to leave the industry completely, *not* merely to change ownership, (2) a fall in the rate of wages, (3) a fall in the price of raw materials, (4) an increase in the demand for the product If any of these things occurs (and no new firms enter the industry meanwhile), the rise in price of the product or the fall in costs may again enable the firms to earn the market rate of interest The hope that some of these eventualities will take place may keep many of the competitors in business far longer than the circumstances justify Interest is a promise, not a certainty, but it is a promise necessary to induce the investment of new funds

The Risk Element

For many loans there is a serious risk that either interest or principal or both will not be repaid How does this affect our problem? In actual practice we will find that there are different market rates of interest for loans estimated to represent or involve different degrees of risk The market rate of interest will therefore cover two things (1) the rate of interest based on time preference and (2) a payment for the risk involved If the reader will look on the financial page of a newspaper, he will find quotations such as the following

Issuing Company	*Rate*	*Maturity*	*Price*	*Yield*
Blank Company	3 50	1965	107¼	3 26%
John Doe Company	4 00	1961	101¾	3 93
Richard Roe Company	5 00	1950	82	6 09
State of Ruritania	6 00	1963	56	10.71

small part do these differences in rates represent differences in risk Extremely short-term loans (such as 30-day loans and call loans) are usually made with funds which the banks would not dare to use for long-term loans because they may need such money on very short notice Consequently, unless this money can be loaned for short periods, it will have to remain idle in the banks Therefore, the banks will ordinarily be glad to take any rate of interest, even as low as a small fraction of 1 per cent, rather than have the funds remain idle and earn nothing There is also another advantage of short-term loans which tends to make them lower priced If a bank extends a loan for 30 days and the market rate of interest suddenly rises from 3 to 5 per cent, at the expiration of 30 days the bank can demand that the borrower pay 5 per cent to have the loan renewed, or it can loan the money to someone else at the higher rate of interest, but if the loan had been for six months, the bank would have to wait the full six months before it could start charging the higher rate of interest on this particular loan

On the other hand, in times of financial panic it will be found that call loans carry much higher rates of interest than other loans In part this will be deceptive, because while long-time loans may have rates quoted, no bank may be willing to make new long-term loans at such a time Moreover, in times of stock market panic, call loans have a peculiar advantage for the borrower Thus, if a man wishes to borrow for only one day in order to hold on to his stock in hopes of a price recovery, call money at 21 per cent per year would cost him only 1/365 of this rate or about six cents per day for each $100 00 he wished to borrow On the other hand, if he borrowed time-money for six months at 12 per cent per year, it would cost him $6 00 for each $100 00 although he actually needs the money only for a few days

Nominal and Actual Rates of Interest

Care should be taken in reading interest rate quotations to distinguish between nominal rates of interest and the rates that actually are paid We saw this in the case of the bond quotations, the "rate" being the nominal rate and "yield" being the actual rate Such differences will be also found occasionally in the rates charged by banks Thus, a bank may say that its rate is 7 per cent But when a man tries to borrow $10,000 00, it may require him to borrow $20,000 00 at 7 per cent and leave $10,000 00 of it on deposit with the bank He is then paying interest on the $20,000 00 but has the use of only $10,000 00, and the real rate of interest on the money he has to use is 14 per cent and not 7 The same falsity of the nominal rate of interest will appear where, in addition to the quoted rate, the borrower is charged a "commission" for the granting of the loan

A similar deceptiveness exists in the way interest is charged on installment plan purchases For example, I may wish to buy a refrigerator the cash price of which is $120 00, but the dealer tells me that I can pay $11 00 a month for 12 months, making a total of $132 00 He also tells me that this represents a 10 per cent interest charge But does it? One dollar per month amounts to $12 00 per year The first month when I am borrowing the full value of the refrigerator ($120 00), the actual rate is 10 per cent However, each subsequent month I reduce the amount which I am borrowing by $10 00, but I *still pay $1 00 per month* (a rate of $12 00 per year) on the progressively decreasing sums which I am borrowing For each month, if we divide $12 00 by the amount of the unpaid balance, we will derive the actual annual rate of interest which $1 00 per month represents, as shown by the table

This table shows what it really costs to "pay as you use," as the advertisements tell you to do Using a similar method,

	Unpaid Balance (Amount actually borrowed)	*Interest ($1 00 per month or $12 00 per year)*	*Actual Annual Rate of Interest on Balance Due*
1st month	$120 00	$12 00	10 00%
2nd month	110 00	12 00	10 91
3rd month	100 00	12 00	12 00
4th month	90 00	12 00	13 33
5th month	80 00	12 00	15 00
6th month	70 00	12 00	17 14
7th month	60 00	12 00	20 00
8th month	50 00	12 00	24 00
9th month	40 00	12 00	30 00
10th month	30 00	12 00	40 00
11th month	20 00	12 00	60 00
12th month	10 00	12 00	120 00
Weighted average rate on unpaid balances			18 46%

one can find the true rate of interest on any installment plan purchase, or on a loan from a "small loan company" which is repaid in small installments

Bank Discount

Another source of confusion as to the actual interest rate is the practice of bank discount This is used on many short-term loans If the bank discount is 5 per cent, instead of charging interest as a separate item, the bank will take your promise to pay $100 00 one year from now and give you $95 00 today Actually you have the use of only $95 00 and you pay $5 00 for it The actual rate of interest is then 5 26 per cent

Cash Discounts and Trade Discounts

The reader may have had occasion to notice on the bills sent to retailers by wholesalers or manufacturers the phrase "2% ten days" meaning that the retailer may deduct 2 per cent from the bill if he pays within ten days This is not intended as an interest charge but as a penalty for failure to make prompt payment of the bill If the retailer bought and sold the same amount of goods twelve times a year, 2 per cent on each turnover would represent 24 per cent a year on his working capital, so he is encouraged to borrow from the banks at 4 or 6 per cent in order to take advantage of this discount and pay cash to the wholesaler In certain products where the manufacturer's catalog is to be shown to the consumer, the prices quoted are retail prices, and then from these prices the retailer is allowed to deduct a discount ranging sometimes as high as 40 or 50 per cent to cover his own selling costs and profit These discounts as well as the cash discounts are not interest rates, they are merely different ways of quoting the prices of goods

Valuation of Income-Producing Property

Regardless of the nature of income from property, whether it be interest, rent, or profits, the principles which govern the determination of the value of such income-producing property are the same In order to determine the value of any piece of property which yields an income, at least two things must be known the amount of the annual income and the market rate of interest

Capitalization of Earning Power

With any property that may be expected to yield the same unchanged income perpetually, a knowledge of the above two elements alone will enable us to determine its present value We would find out what sum of money invested at the market rate of interest would yield the same income as the piece of property in question That sum of money will then be the value of the property in question To find this sum, we divide the annual income expressed in dollars by the market rate of interest For example, let us assume that there is a certain piece of land which we know will yield an income of $6,000 00 a year forever, and that the market rate of interest is 6 per cent Dividing $6,000 00 by 06 gives us $100,000 00, which is the sum we would have to have invested at 6 per cent in order to yield us an annual income of $6,000.00. The value of the land under the given conditions is $100,000.00.

We notice that a change either in the interest rate or in the annual earnings will change the value of the income-yielding property. Thus, if the annual earnings remained the same ($6,000.00) but the interest rate declined to 3 per cent, the value of the property would be doubled, since twice as great a sum would have to be invested at 3 per cent to earn $6,000.00 as was the case at 6 per cent. On the other hand, if the annual earnings decline while the rate of interest remains constant, the value of the property will decline proportionately, and, likewise, if the annual earnings increase for any reason while the rate of interest remains unchanged, the value of the property will rise proportionately.

The above method of figuring values is sometimes called *capitalizing the earning power*. This method may be used to find the maximum value at which a share of stock should sell. It will be found, however, that in stock market "booms" stocks often sell for many times their capitalized earning power. Sometimes such valuations are based on anticipated future earning power. In this case, the valuations are no sounder than the forecasts of increased earnings on which they are based. Often, however, the prices of stocks exceed any valuation based on any reasonable forecast of future earnings. In these instances the prices are usually due to the sheer ignorance of the speculating public which believes that, because a stock has already risen fifty points, it will rise fifty more. Actually, in sober truth, every point that a stock rises above its capitalized earning power is just that much more reason to expect a decline in its price. When we reflect that excessively high prices of stocks usually occur at the peak of the business cycle when corporate earnings are known to be abnormally high, prices that could be justified only by still greater earnings are obviously fictitious.

Valuation of Terminable Income Property

We must now turn our attention to the valuation of other income-yielding property which will yield an income not in perpetuity but only over a definite period of time. We find the method in this case somewhat different from that shown above. Our procedure is to take the annual income for each year until the income-yielding capacity is exhausted, and then to discount (deduct interest from) each year's installment of income for the length of time that we would have to wait for the property to yield the income. The total of these discounted income payments will then be the present value of the income-producing property.

The present value of any future payment is given by the formula

$$P = \frac{1}{(1 + r)^{n}} \times A$$

where P is the present value, r is the rate of interest, n is the number of years that will elapse before the payment is to be received, and A is the amount of the future payment.

An example will help to make this clear. Suppose that there is a coal mine which will yield a net return over operating costs of $1,000.00 a year for a period of ten years, but that at the end of that time the coal will be exhausted, so that no more income will be obtainable from the mine. Suppose also that the market rate of interest is 5 per cent. The computation of the value of the mine is given in the following table.

	(1) *Net Return*	(2) *Present Value of Each Year's Net Return*	(3) *Value Still in the Mine at End of Year*	(4) *Amount of Interest Received*	(5) *Amount of Principal Recovered*
1st year	$1,000.00	$ 952.38	$7,107.82	$386.09	$613.91
2nd year	1,000.00	907.03	6,463.21	355.39	644.61
3rd year	1,000.00	863.84	5,786.37	323.16	676.84
4th year	1,000.00	822.70	5,075.69	289.32	710.68

	(1) Net Return	(2) Present Value of Each Year's Net Return	(3) Value Still in the Mine at End of Year	(4) Amount of Interest Received	(5) Amount of Principal Recovered
5th year	1,000 00	783 53	4,329 48	253 79	746 21
6th year	1,000 00	746 21	3,545 95	216 47	783 53
7th year	1,000 00	710 68	2,732 48	177 30	822 70
8th year	1,000 00	676 84	1,859 41	136 16	863 84
9th year	1,000 00	644 61	952 38	92 97	907 03
10th year	1,000 00	613 91		47 62	952 38
		$7,721 73 Total Present Value			

To obtain the value of the first year's return, we have used the formula to find the sum which would have to be invested at 5 per cent for one year in order for the principal and interest combined to equal $1,000 00 at the end of the year Substituting in the formula

$$P = \frac{1}{(1 + 05)^1} \times \$1{,}000\ 00 = \$952\ 38$$

The present value of the second year's return is $1,000 00 divided by $(1\ 05)^2$, and so on The total of these values gives the present value of the mine

Careful consideration of the table will save us from a common error We must not consider the entire return of $1,000 00 as a net income Part of it is income and part of it is return of capital invested At the end of the first year, the mine has declined in value by $613 91 (at the end of the year the mine is only a nine-year mine, so that its value is shown by the total of the first nine items in column 2) Only $386 09 is a true income, and the other $613 91 represents a repayment of the principal At the end of the second year, the mine will have declined in value by $644 61 more, and only $355 39 is a net income, and so on To keep our capital intact so that we would continue to earn the same amount of income, we should need each year to re-invest, in some other enterprise earning 5 per cent, that part of the $1,000.00 which constitutes a return of capital. This process of reinvestment to earn a constant return is sometimes called *amortization*.

The term *amortization* is also used to describe the reinvestment of a part of its revenue by a business corporation (rather than paying this revenue out in dividends) so that it will be able to repay a bond issue when due.

If the reader bears this principle of limited income yield in mind, he will not confuse the comparatively high rates of return on the stocks of oil- or gas-producing companies or mining companies as being a higher net income than is yielded by stock in some other companies in which the income-yielding resources are not being exhausted by depletion. (Some companies of this nature do set aside a "depletion allowance" to allow them to repurchase new sources of supply when their present ones are exhausted. To the extent that this allowance has been figured accurately, the dividends paid then do represent a true net income which can be spent by the recipient without fear of impairing his principal.)

While we have confined our illustration to extractive industries, the same principle of declining capital value would apply to any manufacturing unit that was allowing its plant and equipment to wear out without setting aside a fund for its replacement and that was paying what should be the depreciation allowance as a dividend to its stockholders.

To return to our illustration of the mine, the accuracy of our valuation is really dependent on two sets of forecasts—one engineering and one economic. The engineer may estimate for us how long the coal will last at its present rate of extraction. If we can accept his estimate as accurate, the remainder of the problem is economic. For the value to be as we have calculated it, three things must remain the same over the ten-year period: the price of coal must remain the same, and its cost of extraction must remain the same (or, if they change, both must change in the same direction and by the same amount) in order that the net return remain unchanged, and finally, the interest rate must remain unchanged. Changes in any of these elements would tend to increase or decrease the value of the mine.

We have said nothing about the cost of plant and equipment in connection with the value of a manufacturing unit or in connection with any other kind of income-producing property. This is because such costs have ordinarily no significance in determining the value. Whether the factory cost a certain amount originally or whether it would cost a certain amount to reproduce it at the present time ordinarily enters very little into the calculations of an individual who is considering buying the factory as a going business. It is true that he would ordinarily not pay more for a factory than it would cost him to duplicate it by building another himself, and hence duplication cost sets an upper limit to the price he will pay. The prime interest of the prospective buyer is not in the cost of the factory but in its capacity to yield income. No matter how much machinery and equipment may have cost originally or how much it would cost to duplicate them, if they cannot be made to yield an income in operation, their value is no more than what they will bring as junk.

Valuation of Public Utilities

The discussion thus far should give us an insight into some of the difficulties which confront Public Service Commissions, the Interstate Commerce Commission, or other bodies that have the task of regulating the rates or prices which public utilities are allowed to charge. The law ordinarily specifies that such public utility companies be allowed to earn either a specific rate of interest or a "fair rate of return" on the value of the investment in them. The regulatory body cannot use the method of "capitalizing the earning power," which we have discussed above, in order to determine what is the "value of the investment," since whatever rate it allows the company to charge will in itself be the principal factor which determines the earning power, or at least which will set a maximum to the earning power For example, if the demand for city water is quite inelastic, the higher the rates a water company is allowed to charge, the higher will be its earnings, and consequently the higher will be the value of a property which is capable of making such earnings On the other hand, if the company is allowed to charge only very low rates, the value of the company based on its earning power would be extremely low

Deprived of the method of capitalizing earning power as a means of establishing the value of public utilities on which a rate of interest is to be allowed, the regulatory bodies are forced to fall back on the cost of plant and equipment as a means of setting the value on which the allowed rate of return is to be calculated Here a controversy instantly arises as to which cost—original cost or cost of replacement—shall be the cost basis on which earnings are calculated Usually, in times of depression (when original cost is higher than replacement cost), the utility companies insist that original cost should be the basis used for valuation But when prosperity returns and replacement costs are higher than original costs, it is replacement costs that they insist on as the basis for valuation

The fact that the Interstate Commerce Commission spent years of time and millions of dollars attempting to value the railroads, and still did not arrive at a valuation which could be fully sustained in the courts, is evidence of the difficulties involved

As if the problem of valuation were not enough, the regulatory body is also saddled with the additional difficulty of determining what may and what may not be considered as legitimate operating costs to be deducted from gross revenue when earnings are calculated, to see if they exceed the earnings allowed by law For example, if the president of a company were also the majority stockholder, he might vote to pay himself an extremely large salary and insist that this was a cost which must be deducted before the earnings of the company were computed The regulatory body would be then faced with the problem of determining whether the president was really worth this sum to the company and, if not, what should be a fair salary for his services

Since all public utility companies are monopolies, there are no competitive businesses rendering the same kind of services with which they may be compared to find even a partial answer to the above problems Regardless of our political affiliations, we may sympathize with the desire to find a "yardstick" with which to measure public utility companies Whether or not the T V A power development is really a proper yardstick is, of course, another question

CHAPTER XXIV

Rent

THE TERM *rent* in popular speech implies a payment made for the hire or use of any material good We shall do well to forget this definition for the time being, since in economics the term has a very different meaning, and we shall find that it is only in certain very peculiar circumstances that *economic* rent is also rent in the sense in which that term is used in common speech

Inelastic Supply of Factors of Production

In economics, whenever any unit of a factor of production is receiving a greater income than the minimum amount necessary to induce that factor to remain in its present occupation, the *surplus* of receipts over its minimum supply price may be called an *economic rent* Thus we have seen[1] that some savers would be willing to lend a part of their funds at zero interest Nevertheless, because the amount of funds required by borrowers is greater than the amount which would be supplied at zero interest, these savers will be able to charge the full market rate of interest on sums that they lend

We can find the same type of surplus, or rent, in the incomes received by some units of the other factors of production Thus, if some workers in a trade would be willing to work for $10 00 a week, but the demand for the product is such that it is necessary to induce other workers into the trade who will not work for less than $15 00 a week, the first workers (who now receive $15 00 also) will be receiving a rent of $5 00 a week—the difference between what they would have been willing to work for and the amount they can actually get because of the greater demand for their services

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[1] Interest as well as the price of other factors is determined at the margin

It will be seen, then, that rent can arise only when the supply of any factor of production is less than perfectly elastic[2] If the supply were perfectly elastic, then by definition the supply prices of all units of the factor would be the same The market price of the factor would be exactly equal to the supply price, an increased demand would merely call forth more units at the same price But when the supply of a factor is less than perfectly elastic, the units of the factor which have the lowest supply price will be used first So long as only these units are used, there will be no rent As soon as the demand increases to a point where it is necessary to employ higher-priced units of the factor, rent will arise on those units of the factor whose supply price is lower, since in a competitive market they will be able to demand the same market price as is received by those units which are just forthcoming at the market price

It is, however, in connection with surplus income from land that the term *rent* is most often used by economists Indeed, many economists reserve the term *rent* for uses in connection with land alone, and employ other terms for the monopoly gains we have noticed above It is not necessary, however, for us to quibble over the use of these terms By whatever name they are called, the nature of these incomes is the same they are a return made possible because the supply of the factor is less than perfectly elastic and because the demand for the factor is sufficient to require the use of more units of it than would be offered at the lowest supply price of any unit

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[2] Robinson, Joan, *Economics of Imperfect Competition*, Ch 8, The Macmillan Co, London, 1934

Rent from the Social Point of View

Considered from a social point of view, all income derived from the uses of the services of land is an economic rent. We have defined land as including all natural resources (all natural raw materials, all natural sources of non-animal energy, and standing room). By definition, these natural resources are the free gifts of nature, they have no cost of production and consequently no supply price based on cost of production. Furthermore, the physical laws of the conservation of energy and the indestructibility of matter assure us that the efforts of man cannot add to or subtract from the total amount of such resources. From the point of view of society as a whole, any payment for the use of matter and energy in their original natural forms is a surplus over supply price, and from the point of view of society as a whole the rent of land is not a cost of production. How, then, can we explain the payments which are made to those who happen to own land?

In the first place, while matter and energy as such exist in unlimited quantities, the quantities in which they exist in their present form are not unlimited. Furthermore, some forms of matter and energy are adaptable for human use with far less cost of labor and capital than are other forms. Thus, carbon in the form of coal can be obtained with less effort and cost than carbon from the atmosphere or from sea water, the latent energy of a waterfall can be harnessed for human use for some purposes at far less labor cost than energy from the sun or the tides. Nitrogen already present in a particular piece of soil is available for use as plant food without any additional expenditure of labor or capital such as would be required to bring nitrates from Chile or to extract them from the atmosphere for use in another piece of soil that lacked nitrates.

But the mere fact that natural resources in certain forms can be used in production with less cost in labor and capital than natural resources in other forms is not, in itself, a sufficient explanation of the reason why the owners of the land in which these resources are embodied are able to demand a payment for the use of such land To explain successfully the rent of land, we must be able to show that the services of land are sufficiently scarce relatively to the demand for such services that a payment will be made for their use (It does not matter whether such a payment is received by the landlord as a surplus over other costs by using the land in production himself, or whether he leases the land to someone else for a cash rental)

To start our analysis in the simplest case possible, let us assume that all land is capable of producing only one product and that all land is of equal productive power (equal fertility, and so forth) In these circumstances, under pure competition, an increasing demand for the product will be met by an increasing number of firms, each producing at the point of minimum average total unit costs, until all the land is in use Production for the industry is under conditions of constant costs Until all land is in use, land is not a scarce factor of production Price will be equal to minimum average total unit cost of all firms in the industry, and there will be no surplus over cost to go to the landowner as a rent If the landowner uses the land in production himself, the total revenue from the product will cover only wages, interest, and wages of management No one else would pay to use the land, since the total costs would likewise be equal to total revenue and they would have nothing left with which to make the payment

Now, what happens when all the land is in use and the demand for the product increases still further? Output can no longer be expanded by adding more land, but only by using other factors in greater amounts in connection with the fixed amount of land in existence The law of nonproportional outputs will now operate to bring about increasing marginal and average costs as expansion of output is attempted The law of nonproportional outputs we stated as follows Whenever any factor of production is held constant in amount, as successive units of other factors are used in combination with it, the output of the product will not be in continuous proportion to the amount of variable factors used, but will increase to a maximum proportion, after this point, additional output per unit of variable factor added will decline

When land is the fixed factor which is held constant in agricultural production, the working of the law of nonproportional outputs is easy to observe For instance, let us assume that we have but one acre of ground on which to raise corn As we attempt to use more and more seed, we will soon reach a point where the plants are crowded and an additional pound of seed will result in a smaller addition to the crop than resulted from the previous pound of seed As we hire more and more labor to hoe the corn, we will very shortly reach a point where an additional hour's labor in hoeing will result in a smaller addition to the total crop than the previous hour of hoeing labor Similarly, the use of additional pounds of fertilizer will begin to show diminishing proportional outputs A similar point will be encountered in the use of additional farm tools With the prices of the variable factors given, the least cost combination of variable factors with a fixed acre of land can be determined as shown in the chapter on "Equilibrium of the Industry"

After the least cost combination has been attained, the attempt to expand output by adding more of any or all of the variable factors will result in increasing marginal and average costs, even though the prices of the variable factors do not rise when more of the units of the factors are used For example, assume that the wages of farm labor are 50c an hour and that we can obtain all the labor we want at that price, that the price we pay for seed-corn is 2c a pound and that the price of fertilizer is also 2c a pound Further assume that at the least cost combination the addition of the last hour of labor and of the last pounds of seed and fertilizer has added three bushels of corn to the total crop The marginal cost of the added output is 54—3 or 18c per bushel Now, let us add one more hour of labor and one more pound each of seed and fertilizer We find that this adds only two bushels of corn to the total crop Marginal cost per bushel is now 54—2 or 27c Thus, the cost is rising as more units of variable factors are added, simply because of decreasing output per unit of variable factor, although the prices of the factors remain unchanged[3]

When all land is in use, if people want more of the product than can be produced at the least cost combination, they will have to pay a price for it which is equal to marginal cost Each producer will expand output to the point where price is equal to marginal cost But at this output average total unit cost will be less than the price of the product and total revenue will be greater than total cost Here is a surplus return over costs Each firm will be in equilibrium because marginal revenue (under pure competition the same as price) is equal to marginal cost The *industry* will be in equilibrium because no new firms can enter to take advantage of the surplus, since there is no more land for them to use This surplus is economic rent of land The owner can earn this economic rent by using the land himself in the production of the product If the landlord does not care to use the land himself, he can offer it for lease to others Competitive bidding for the use of the land will then force whoever does obtain the use of the land to pay the full amount of the economic rent for it Even if there is only one bidder, the landlord can refuse to lease the land for a smaller rent than he could make by using it himself to produce the product (Note that even though the landlord were to decide to make no charge for the use of the land, economic rent would still arise The freeholding tenants would then themselves produce to the point where price was equal to marginal cost, and pocket the economic rent themselves)

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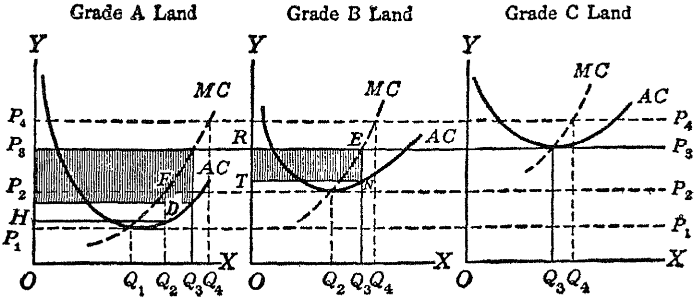
[3] All of the above is simply another way of saying that the elasticity of substitution of labor and capital for land is less than infinite When we hold the amount of land constant and attempt to add more labor and capital to it, instead of increasing the amount of land used also, we are really attempting to substitute labor and capital for land in the process of production As we have seen above, there are limits to the profitability and, eventually, to the physical possibility of such substitution As a bright undergraduate once remarked, 'If it were not for the law of nonproportional outputs, the food for the entire world could be grown in a flowerpot" If it were not for the law of nonproportional outputs, an ever greater output could be obtained merely by using more and more capital on small pieces of land best suited for any kind of production In other words, the elasticity of supply of services of land would be infinite as far as the purposes of production were concerned An ever expanding output could be produced without encountering scarcity of land, and there would be no rent of land

Differential Rent

In the preceding discussion we made the assumption that all land was of equal productivity or fertility We shall now remove that assumption, recognizing that for most purposes there are different grades of land This introduces no contradiction, but merely an elaboration of our previous analysis When there are different grades of land, the best (most productive) grade will be used first before recourse is had to the poorer lands So long as the demand for the product is so small that all the best grade land is not needed to produce the output, the situation will be the same as above when there was only one grade of land and not all of it was in use Price will be equal to minimum average total unit cost and there will be no rent When all the best grade land is in use, further increases in the demand for the product will be met first by more intensive cultivation of this best land Price will be equal to marginal cost and greater than average total unit cost, and rent will arise on the best grade land, exactly as before

As demand increases still further and output on the best land is expanded, a point will be found where the rising marginal cost on the best land is just equal to minimum average total unit cost on the next best grade of land At this point the second grade of land will be brought into use It will be earning no rent (with the price equal to minimum average cost), but farmers would be exactly as well off using this land and receiving no rent from it as they would be if they leased the best grade land from others and paid the full economic rent for its use

After all of the second grade land is in use, if the demand for the product increases still further, output will be increased on the second grade land beyond the point of minimum costs (and output on the first grade land will be expanded still further) Price will now be equal to marginal cost and greater than average cost on the second grade land, and the second grade land will now start to earn a rent, although not as large a rent as that on the best land As demand increases and price rises further, a point will be found where rising marginal costs on the two grades of land are exactly equal to minimum average cost on a third grade of land At this point the third grade of land will be brought into use with results similar to that on the second grade, and so on with successive price rises for as many grades of land as there are in existence



Rent of Land

The diagram illustrates the emergence of rent on different grades of land *MC* is marginal cost (not including rent) and *AC* is average total unit cost (not including rent) on each of the three grades of land P_1, P_2, P_3, and P_4 are various possible prices of the product, and Q_1, Q_2, Q_3, and Q_4 are the outputs which would be produced at these prices

At price P_1 there is no rent Between prices P_1 and P_2, the situation is the same as if grade-A land were the only land in existence price will be equal to marginal cost, and the difference between marginal and average cost, multiplied by the output, will constitute rent At price P_2 rent on grade-A land is shown by the area P_2FDH At price P_2 it will be noticed that grade-B land is brought into cultivation but earns no rent At price P_3 the rent of both grade-A and grade-B land is shown by the shaded areas At price P_3, grade-C land also comes into cultivation, earning no rent At price P_4, grade-C land would be earning a rent also

Under pure competition, so long as land is capable of producing only one product, output of the individual firm will be the same regardless of whether rent is considered as a cost or not If the owner is using the land himself in production and does not consider rent as a cost to himself, rent will be the net return which he is trying to maximize, and he will produce up to the point where price is equal to marginal cost (not including rent), as we have seen above If a tenant hires the land and pays full economic rent for it, rent will be a fixed cost and will not determine output Furthermore, at any given price for the product, minimum average cost (including rent) will be the same as marginal cost (not including rent) This may be seen in the diagram

At price P_3, on grade-B land

> EQ_3 is marginal cost (not including rent) at output OQ_3,
> NQ_3 is average cost (not including rent) at output OQ_3,
> total rent is the shaded area *RENT*
>
> Average rent per unit of product, at output OQ_3, is given by the height of the shaded area *EN*
>
> But $EN + NQ_3 = EQ_3$, that is, average cost (not including rent) plus average rent is equal to marginal cost (not including rent)

For a fixed cash rent equal to *RENT* on grade-B land At any output less than OQ_3, average rent per unit of product would be much greater than *EN*, since total rent would be divided by a smaller number of units, hence, average cost (including rent) would be greater than EQ_3

At any output greater than OQ_3, although average rent per unit of product is falling, average cost (not including rent) is rising so rapidly that when the two are added together, average cost including rent is greater than EQ_3

Therefore, EQ_3 represents *minimum* average cost, including rent (This is not a peculiarity of this diagram, for it can be shown by calculus that these relationships hold for any set of marginal and average-cost curves)

As far as we have gone in our analysis, it would appear that rent is purely a result of the price of the product and is not a cost factor that will help to determine output and price This would be true if there were only one product that land was capable of producing (the assumption which we made) Our analysis of rent can stop here for any land which has only one use Wherever land has only one use, the rent will be a result of the price of the product and will amount to the difference between the price of the product and the labor and capital costs of production on each unit of output

Regarded from the point of view of society, all rent of land is of this nature, that is, the total amount of all land in existence is fixed, and the amount of land cannot be increased or decreased by its owners in order to obtain a price for it. The elasticity of supply of land in general might be said to be zero Landowners will offer all the land they own in return for whatever income they can get for it[4]

Rent Within an Industry

However, looked at from the point of view of a single industry, at least a part of the rent of that land which has more than one use enters into the cost of production and helps to determine output In order to obtain land for any particular use, an industry will have to pay a rental that is at least equal to that which the land could earn in other uses As the industry expands and it becomes necessary to draw land away from other uses in which it is increasingly valuable, the price which this industry will have to pay for the use of the land will rise The minimum supply price of each piece of land to the industry will be the amount which the land could earn in its most valuable alternative use Such a price may be called the *opportunity price* of the land, since it is the price necessary to cause the land to be transferred for use in this industry

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[4] From our point of view, it makes no difference whether the landlords receive rent by leasing the land to others or by using the land themselves in production, the supply of land for the purposes of production will be the same

The price of the product will be determined at the point where price is just equal to marginal cost (*including* transference price of land) on the highest cost land which is to be retained in the industry It should be noted that from this point of view, the marginal land (that land which will leave the industry first if the price of the product falls) need not be the least efficient nor the poorest land in use Thus, land which is best suited for the production of wheat may also be best suited for dairy farming And this land might be the first which would be withdrawn from wheat production and turned to dairy farming if the price of wheat falls

When the opportunity price of land is considered as a cost of production to the industry, there is still the possibility of a surplus which we may call *economic rent within the industry,* if the transference price of land to the industry is rising as more land is used The firms using the land with the lowest opportunity price will be able to obtain the same price for their product as the firms using the highest cost land They will, of course, expand output to the point where marginal cost is equal to price, but a surplus return will remain on the intramarginal lower cost units of output If the firms using the land with the lower opportunity prices have taken the land on a long-term lease before the industry expanded, or if they have bought the land, they will be able to pocket this surplus for themselves If not, the landlord will be able by threatening to lease the land to others to insist that they pay the full economic rent as soon as their lease expires

Rent from the Point of View of the Individual Firm

From the point of view of the *individual firm,* all rent of all factors must be considered as costs of production If the firm leases land from others, the cash payment of the rent is obvious as a cost If the owner of the land uses it himself in production, the full payment that he could have received had he leased the land to others will be an opportunity cost While this will not be a cash expenditure which the owner must pay out, unless he considers rent as a cost he will be deceiving himself as to the source of his income and may be overlooking the opportunity to make a greater income Thus, if I am farming my own land, and the returns which I receive after all other costs (including interest and wages of management) are accounted for do not equal the amount which I could receive by leasing the land to someone else, I would be neglecting the opportunity to make a greater income

The rent that arises because of differences in the opportunity prices of land might be called an *intra-industrial* rent It is a surplus which can be earned by using the land in this industry rather than in its next most valuable use This part of the payment for the services of the land will not influence the output of the industry, since the land will be retained for use in this industry so long as it is earning at least its opportunity price

However, the consideration of all payment for the services of land (including intra-industrial rent) as a cost to the individual firm (either a money cost or an opportunity cost) will help to determine which firm is to obtain the land for use within the industry Thus, if I own a particular store location which can earn much more in use as a shoe store than for any other purpose, I will be able to demand for its use the full payment of what it can earn *as a shoe store* (including intra-industrial rent), and I will not have to be content with the lesser earnings it could make as a grocery store If the first tenant to whom I happen to lease the location proves to be a poor shoe store manager and cannot make the store yield the full amount of this payment, I will not have to lower the rental, because if he fails I will be able to lease the store to a better manager who is able to take full advantage of the location The maximum amount of rental that I can receive will lie somewhere between what the best manager and what the second best manager are willing to pay for the use of the location But in no case can the rental I receive exceed the rental on the next best shoe store location by more than the difference between what the best manager could earn by using my location and what he could earn by using the next poorer location If I try to run the shoe store myself and find that I am not a good manager, I will be able to receive more by leasing it to someone else who is

Location Value

The rent of land as we have explained it is a *value* surplus left over after other costs have been accounted for This surplus depends upon the amount received from the sale of the output and upon the costs necessary to produce that output A given piece of land can command a rental either because costs of production on it are low, or because the receipts from the sale of its product in the particular location are high We have already examined the influence of differential costs of production upon rent. We must now turn our attention to the influence of location.

Of two pieces of land equally productive (that is, on which costs of production are the same), the one located nearest to the market for the product will command the higher rental

This will be due to the differences in the cost of transporting the product to the market Thus, a dairy farm located within 100 miles of New York City will receive a higher total revenue, after freight charges are deducted, on the same quantity of fluid milk sold in New York City than would be received by a dairy farm 200 miles distant from the city The full amount of this difference will be an addition to the economic rent of the better located farm The additional rent due to the location of the land might be called its *location value*

The location value of retail store sites requires further explanation A particular store location can earn a high rental either because people are willing to pay high prices to trade in that location or because a large volume of business can be done in that location The high rentals paid by many so-called "exclusive' shops on Fifth Avenue are due to the fact that the district is considered a fashionable place in which to buy, and in consequence the wealthy people who trade there allow themselves to be charged higher prices than they would pay for the same goods if they were displayed and sold on Tenth Avenue On the other hand, the high rental earned by some other stores is due to what is called the high "rate of turnover" which is possible in these stores, or to the volume of business which can be done at a low price The "rate of turnover" is the number of times a year that the same value quantity of goods can be bought and resold A store with a high rate of turnover can do a greater volume of business on the same amount of invested capital than a store with a smaller rate of turnover, consequently, since its interest costs are less, there will be a greater surplus left as rent The total volume of business which a store can do is also a factor in determining the rental A store which is empty of customers for a great part of the time will still have to maintain a sales force to care for customers when they do come in, so that the cost of salesman's wages per unit of goods sold will be high On the other hand, a better located store may have a sufficient number of customers coming in all the time, so that its salespeople are fully occupied and its selling cost per unit of output is lower The latter store will then be able to earn a higher rental than the poorer located store For these two reasons—volume of sales and rate of turnover—a United Cigar Store located at Times Square pays a higher rental than a similar store located in the Bronx, even though cigars and cigarettes sell for the same price in both places

Another element in location value closely related to the above is the lower advertising costs which may be necessary to do the same volume of business in different localities Thus, a store that is so located that a large number of prospective buyers pass it every day may use its windows for display purposes and sell a large volume of goods without further advertising cost A store so located that buyers are not in the habit of passing it will have to incur a much greater expense for advertising in order to do the same volume of business The better-located store would command a greater rental than the one in the poorer location

Urban Site Rent

The difference between the nature of the location value of agricultural land and the location value of urban sites must be recognized The location value of agricultural land is due to its distance from a competitive market and is mainly a function of transportation costs The location value of urban sites contains a distinct monopoly element[5] Possession of a particular site carries with it a partial monopoly of the trade of a particular group of people insofar as people are motivated by habit or laziness in trading in those localities which are most convenient to them If all people would buy only from the dealer who offered goods at lowest prices regardless of his location, no retail store location could command a higher rental than any other in a city, except as differences in transportation costs were different in different locations If people were content to buy all products by mail order, transportation costs would be the only element that could give rise to a location value on the sites of the warehouses from which they were served

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[5] Chamberlin, E , *The Theory of Monopolistic Competition,* Appendix D Harvard University Press, 1935 John Ise presents an interesting contrary view in the *American Economic Review,* February, 1940

One other source of location value should be noted that may be present in the rent of either agricultural land or manufacturing sites If the wages in a particular community are much lower than those that prevail in other communities but the workers refuse to move out to localities where they could obtain better wages, then farm land in the low-wage locality will be able to earn a higher return than farm land of equal fertility and equal transportation costs in other localities The same would be true of factory sites in the low-wage locality If the land available for farm land in such a low-wage farming community is limited, or if the land available for factory sites in a low-wage manufacturing community is limited so that competition for workers will not raise wages, then the excess location value due to low wages will persist until such time as workers move out of the community The high rental values of mines and the low wages of miners in certain isolated mining communities can be explained only by the inability or unwillingness of the miners to move elsewhere and seek other occupations

Before leaving the subject of agricultural rent, certain causes must be noted which may decrease the rent of agricultural land The discovery of a new and cheap fertilizer may make some land available for use in agriculture which formerly could not be used at all and may lower the cost of production of larger outputs on land previously in use While the new land may then start to yield a small rental, the increased output of the product will cause the price to fall and consequently reduce the rental on what were previously the more fertile lands To the extent that the fertilizer will give a greater amount of product with the same expenditure for labor and capital on all lands, the total output will be increased, the price of agricultural products will fall, and the general level of agricultural rents will decline In effect the available supply of agricultural land has been increased A similar result follows from the discovery of any improved agricultural methods which are generally adopted[6]

Changes in dietary habits may also cause agricultural rent to decline As people consume less food, the decrease in the demand for foodstuffs will lower agricultural rents Even a shift in dietary habits from animal products to vegetable and cereal products may tend to reduce agricultural rents, since a smaller number of acres of land will be necessary to feed a population subsisting more upon vegetables and cereals and less upon animal products

There are no grounds on which to prophesy that either agricultural or urban rents will increase over a long period of time Agricultural rents will increase only if the demand for agricultural products increases more rapidly than new methods of agricultural production are discovered and adopted Urban rents for business purposes will increase only as people concentrate more and more of their buying in a given locality New means of transportation that cause population to be decentralized, and new methods of marketing, may offset this tendency

Quasi Rent

Investments in durable capital goods often yield a return which is quite analogous to the rent of land Once such investments have been made, they are in the nature of "sunk costs." Once the capital goods are in existence, the owner has no recourse except to make whatever return on them that is possible under the circumstances. Their original cost will not be a determinant of the price of the product, since the owner will continue to use the capital goods in production as long as price is greater than average variable costs. The minimum supply price of capital goods already in existence may be said to be zero in the same sense that the minimum supply price of land is zero. Consequently, any return on these goods is in the nature of a rent. The name *quasi rent* has been used by some economists to designate this return.

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[6] The effect on agricultural rents and land values of the newly developed method of growing vegetables in tanks of water filled with appropriate minerals, will be interesting to observe.

While we have just said that the cost of *existing* capital goods is not a determinant of the price of the product, nevertheless if demand for the product increases, in order to induce the construction and use of *new* capital goods, the price of the product must be sufficient to promise a return at the market rate of interest on any new funds which are to be invested. Consequently, if either the rate of interest or the cost of production of capital goods has risen, the old capital goods that were previously in existence may earn a rate of return greater than that which was anticipated by the owners when the goods were originally purchased. This situation is quite similar to that which occurs in the purchase or long-term lease of land. Subsequent events may operate either to raise or to lower the actual return from that which was contemplated at the time the lease or sale was made.

CHAPTER XXV

Profits

PROFITS are the net income accruing to the owners of a business after all costs are accounted for What we are to class as profits depends upon what we consider to be the costs of a business We have classed wages, rent, interest, and wages of management as costs Profits, according to our definition, will thus be any income in excess of these costs

We have already seen in Chapter XIII that, under pure competition, there will be no profits in the long run Any pure profits that we discover will have to be either profits arising from a monopoly position or profits of a temporary nature

Monopoly profits, as we have seen, *arise through the ability to control output so that price will not fall to a point where it is only equal to cost* In addition to the ability to control output, another condition must also be implied namely, the nature of the demand for the product must be such that at some possible point of output price will be in excess of costs Even the profits of monopolies may prove to be of a temporary nature, as we shall find when we examine the implications of these conditions more fully

Sources of Monopoly Power

If the demand curve for a product is known, the source of monopoly power lies in the ability to control the output of an industry Such power to control output is really based on two conditions: (1) the power to regulate the output of the single firm or small group of firms which comprise the industry at present, (2) the power to prevent new firms from entering the industry. We shall now examine some of the more common sources of this power.

In the first place, the exclusive right to render a certain service in a particular market may be granted to one firm by a charter or franchise issued by a government. This is usually done in the case of industries called *public utilities* such as streetcar lines, gas and electric companies, water companies, railroads, telephone and telegraph companies, and so on. The services which public utilities provide are usually called *legal monopolies,* since competition in producing them would be so wasteful and inefficient that it is considered advisable to grant the exclusive right to perform such services to one company. In return for such a grant, the chartering government usually reserves the right to set the maximum rates that may be charged for these services. The setting of rates by a government agency then acts as a limitation upon the amount of monopoly profits that may be earned.

The usual procedure followed by a regulatory body in setting maximum rates is to allow the company to earn a certain percentage on the value of its investment. This gives rise to the very difficult question as to what is the proper value of the investment. We have already given some consideration to this question.[1] What interests us now is that while such a regulatory agency may *allow* a certain rate of return on the investment, it cannot *guarantee* such a return, unless the public is to be taxed to make up any possible deficits, and this, of course, is seldom done. It follows that even the limited profits allowed by the regulatory body are not necessarily a permanent source of income. Thus, competition by busses and trucks may so decrease the demand for the services of a particular railroad that it cannot earn a profit, no matter what rates it is allowed to charge The widespread use of automobiles in a certain locality may completely destroy the earning power of a streetcar line A cheap source of electricity may cause people to cease using gas, even for heating and cooking, at any price that would be profitable to the gas company Even when supported by a government franchise, monopolies are dependent on the demand for their product in earning monopoly profits

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[1] See Ch. XXIII on "Interest."

Another source of monopoly power is the possession of patent rights issued by the government upon a product or upon the machinery or process used in the manufacture of a product The possession of such patent rights will serve to prevent direct competition in the manufacture of the product, so that output can be controlled for the duration of the legal life of the patent Here again, however, the amount of monopoly profits and the length of time they will continue will depend upon whether successful competing substitute products are introduced and upon the nature of the demand for the product If it could always be known in advance what the monopoly profits on a patent were going to be, and if the market in which these patents were sold was perfectly competitive, the inventor could always obtain the full value of these monopoly profits for himself by selling or leasing the patent rights, and there would be no profit left over to go to the owners of the business who merely used the patent But in the absence of these conditions in the actual world, we sometimes find inventors being exploited by being paid less than their patents are worth, or they are overpaid when the invention does not prove as profitable as was anticipated when the patent was purchased The use of trade marks may serve to prolong the profit-yielding monopoly value long after the patent expires

The net returns arising out of the exclusive ownership or control of a source of raw materials or water power should not be considered as monopoly profits at all but as a rent on the land in which these scarce resources are embodied. If other conditions are the same, the owners of these resources can obtain no more by using the resources themselves in production than by leasing them to others. It may be considered a monopoly profit if there is only one owner.

Another source of monopoly power and monopoly profits lies in the agreements that are sometimes made between firms that would otherwise be competitive to restrict output or to maintain prices. Trusts, pools, cartels, and "gentlemen's agreements" are some of the commoner names given to monopolistic organizations of this sort. Unless these agreements are given sanction by government (such as was the case with the German Cartels and the N.R.A. codes during their brief existence), they will be unenforceable and consequently will last only so long as each and every member considers it to his own self-interest to keep the agreement. If prices are to be fixed for even a short period, the agreement will have to provide some means of restricting the output of each of the constituent firms. Otherwise, as soon as a profitable price is set, it will be to the interest of each of the member firms to produce all that it can to sell at that price. If very many of the firms try this, the total output of the industry will soon be so great that it cannot be sold at the price fixed in the agreement, and there will be a temptation for each firm to cut prices to dispose of its output. Furthermore, any monopoly profits achieved by an agreement of this sort are apt to be shortlived unless some means exists for preventing the entrance of new firms into the industry (for example, control of patent rights or of raw materials). In the absence of obstacles to the entrance of new firms into the industry, the setting of a profitable monopoly price will act as an inducement for new firms to start competing with the "trust" for a share of the excessive profits.

Profits of Monopolistic Competition

By far the most common source of monopoly profits lies in what we have called product differentiation As we have seen, when a product is successfully differentiated in the minds of a group of buyers either because of the services which are rendered with it or because of the impression which past advertising has made on the minds of the buyers, the firm will have a limited monopoly of the trade of a certain group of buyers The good will of the business consists in the ability to retain customers, either while charging a higher price than that charged by competitors, or by selling at a price equal to that charged by competitors although lower selling costs than those incurred by competitors are enjoyed As we have seen in the discussion of cost and price, there is no way of telling how long the profit-yielding advantage of product differentiation will persist New competitors may attempt to duplicate as closely as possible the services offered by an old firm, or they may offer superior service to a particular group of the old firm's customers Profits of the old firm may then be reduced or eliminated by a reduction in the demand for its products, by increased cost of production on a smaller output, or by increased selling costs, or by two or more of these causes acting in combination

For some firms in some industries, however, the monopoly profits arising out of product differentiation and good will may persist for a considerable number of years This is most likely to be the case in the manufacture and sale of those products that require a large volume of output to attain low unit costs, or in those that require a heavy expenditure on plant and equipment to produce even a small output Wherever a heavy initial cost must be incurred to start a firm (whether a cost of production, a selling cost, or both), it will tend to act as a deterrent to the entrance of new firms into the industry, since there will naturally be some hesitancy about risking the necessary amount of capital Product differentiation and the possession of good will by the existing firms in the industry will tend to increase such a risk and give it greater force as a deterrent to the entrance of new firms

Profits of Innovation

There is another source of profits which may appear either in combination with product differentiation or in a perfectly competitive industry We may call this type of profits the *profits of innovation*[2] Thus, the first firm or firms to introduce a new product, even though the product is unprotected by a patent, may make a profit for a time until competitors start to duplicate or imitate the product, thereby forcing its price down to a point where only competitive costs of production are covered Similarly, the first firm or firms to adopt a new lower-cost method of production in a competitive industry may make a profit because they will have lower costs than their competitors until such time as the improvement is adopted generally by the industry Thus, the first wheat farmers to use tractors and gang plows in extensive wheat farming made a profit by so doing, but as the tractor came to be generally used, the decline in the price of wheat eliminated this source of profit

The opening of a new market for a product may also give profits of innovation for the first firms which start to sell in that market until competition wears away these surplus gains The discovery and utilization of a new and cheaper source of raw materials will likewise give profits of innovation to the first firms that take advantage of it

All of these sources of the profits of innovation are purely temporary sources of profits They will persist only until such time as competitors adopt the same methods or duplicate the product The opportunity to make such profits may exist for a long time before anyone realizes it, either because businessmen are in ignorance of the opportunity or because they are doubtful of the possible success of the new method Once the method has been put into practice by one firm, however, and the profits are actually shown to exist, imitators may rush in to follow the lead of the successful innovator If no obstacle exists to the adoption of the new method by competitors, competition will continue to the point where the profits of innovation are eliminated

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[2] Schumpeter, J A, *The Theory of Economic Development,* Ch II, Harvard University Press, 1934

When it is possible to combine innovation with one of the monopoly elements we discussed above, the profits arising out of innovation may continue for a long period of time Thus, a firm which manufactures a new product may control the patent rights either on the product itself or on its process of manufacture Such a patent, however, will be a guarantee only against exact duplication of the product by competitors Once the innovator has demonstrated that there is a market for such a product, the product may be closely imitated or even improved upon by competitors without necessarily infringing the original patent Thus, we have seen one electric refrigerator after another put on the market, each differing somewhat from the other in design, but all competing with each other in the market for refrigerators The degree of monopoly power conferred by a patent varies from one product to another and depends to a considerable extent upon the breadth of the claims allowed in the patent

As important as (and sometimes more important than) patent rights, in the prolongation of the profits of innovation, is the possibility of building up good will for a trade mark or brand name in connection with an innovation A firm that puts a new product on the market may be able to obtain a great deal of free advertising in the news columns of the papers simply because the product has "news value," whereas subsequent competitors may have to pay for all the advertising necessary to introduce their variety of the product to the public All of the competitors who are first in the field will be able to take advantage of the old axiom that "a satisfied customer is the best advertisement" The competitors who enter the field later will have to struggle to overcome this advantage of the first firms For example, any of us would probably be far less hesitant about buying any of the so-called "standard" makes of cars which are on the market than we would be about buying a new make of car whose manufacture was just started this year This advantage of good will is apt to be greatest in those products of which the buying public is unable to determine the merits by inspection In any event, the advantages of good will and the profits accruing from it will last only until competitors are able to make serious inroads on the business of the older firms

All of the sources of profits which we have discussed thus far have depended for their existence upon some monopoly element Even the profits of innovation may be classed as profits of partial monopoly, since they are dependent upon the smallness of the number of firms which first adopt the innovation

Windfall Profits

We must now turn to the consideration of profits that may arise from time to time in purely competitive industries In general, these may be classed as *windfall profits*,[3] since they are not anticipated by the firms in the industry and since they arise from sources which are entirely beyond the control of the firms

One of the commonest sources of windfall profits is the advance in the price of a product due to currency inflation, whether such currency inflation is a part of the "recovery" and losses.[5] What we call a profit will depend upon the length of time for which we are drawing up the accounts of a firm or an industry.

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[3] A term used by J M Keynes in *A Treatise on Money*, Vol I, p 125, The Macmillan Co, London, 1930 Our analysis here, however, is considerably different from that of Keynes

Another source of windfall profits may lie in sudden increases of demand for a product not occasioned by monetary causes. When demand increases, the existing competitive firms in an industry may all make a profit for a time until new firms enter the industry and supply is increased again to the point where no profits remain. Such a change in demand might be occasioned by a change of taste, by the development of a new use for an old product, or by a change in the distribution of income among the population.

A shift in the location of population may also be a source of temporary profits. Thus, when a new industry employing a large number of men starts up in a small town, the existing retail stores may make a large return temporarily by selling to the employees of the new company. A part of this return will, of course, be an increased economic rent on the enhanced location value of the stores. But the rest of it will be a temporary monopoly profit because only a few stores will be in a position to supply goods for the increased demand. As soon as new competing stores can be set up to cater to the larger demand, this profit will tend to disappear, and the enhanced economic rent alone will remain.

Profits and Risks

Another source of profits arises in connection with the risks involved in a business enterprise. If the production of a certain product involves a considerable degree of risk that the capital invested in such an enterprise will be lost, then the price of the product will have to be high enough to induce the owners of capital to take such a risk of investment If any firm in such an industry is then fortunate enough to experience *less* than the average anticipated losses, it will be making a profit, since the price of the product is based on the average expectancy of loss

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[5] Anyone who buys a business, or a share of stock in a business, in a prosperous year in the expectation that the level of windfall profits represents the permanent earning capacity of the firm, is bound to come to grief.

This element accounts for the larger profits made by certain successful maritime adventurers before the development of marine insurance Thus, if it was the general experience that one shipment out of every ten resulted in a total loss of both ship and cargo, freight rates and the prices of imported goods would have to carry at least an additional 10 per cent and probably more to induce shipowners and shippers to take such risks Any shipowner or shipper who experienced no such losses would be making the 10 or more per cent as a profit, and any who experienced less than 10 per cent of losses would make a proportionate profit

Whenever any risks of this sort are covered by insurance, the profits arising from the risk element will disappear The principle of insurance involves the taking of a small loss by everyone, in the form of the premium paid, in order to avoid a possible greater loss The risks which can be covered by insurance will not act as a deterrent to the investment of capital in the industry The normal price of the product will then have to cover the insurance premium as a cost, but there will be nothing left over as a profit Wherever risks can be eliminated either through insurance or through any other methods open to all the firms in an industry, the profits due to the risk element will disappear

We have discovered, then, that business profits are the most uncertain and unstable of all forms of income For profits to persist for any appreciable length of time, there must be a monopoly element that gives rise to them Even monopoly profits will last only until competition of successful substitutes or a decrease in the demand for the product eliminates them.

CHAPTER XXVI

Monopolistic Competition and General Equilibrium Theory

WE HAVE had, earlier, an exposition of general equilibrium theory in terms and under conditions of perfect and and pure competition In the intervening discussion of the markets for the factors of production, we have had to take into account certain "imperfections" of these markets (presumably conditions which would disappear if sufficient time were allowed to elapse with *no new disturbing elements* intervening)

On the other hand, we noted certain elements of monopolistic competition which might be expected to continue even after market imperfections were removed (if they ever could be) These elements would force those of us who accept the doctrine of monopolistic competition either to *reject* the theory of general equilibrium as stated under the conditions of pure and perfect competition or to *alter* that theory so as to take account of the various forms of product differentiation and degrees of monopoly which exist in the actual world

The Conditions of a State of Equilibrium

We may restate our conditions or requirements for a state of general equilibrium✓ (1) No opportunity for firms to profit by expanding or contracting output✓ (2) No profitable opportunity for new firms to enter an industry, and no necessity for any existing firms to leave an industry✓ (3) No profitable opportunity for changes in the proportions of factors of production used by a firm or an industry We may allow for a "moving equilibrium" by taking into account changes due to an expanding population Our discussion of how well these conditions may be fulfilled under monopolistic competition will occupy the rest of this chapter

Divergence of Marginal and Average Revenue

The removal of the assumption of pure competition forces us immediately to re-examine the conditions of equilibrium which were based on that assumption The rule of proportionality between prices of factors and their marginal products still holds The owner of the monopolistic firm has the same motives and follows the same process in seeking the least-cost combination of factors as does the purely competitive owner

The greatest difference comes in the concept of the marginal product[1] Under pure competition the marginal revenue product consists of the number of units of the product added by the last unit of a factor employed, multiplied by the selling price per unit of product This follows from the fact that under pure competition the individual firm accepts the price of the product as a given condition which it cannot alter and hence does not consider changes in its own output as a factor which may affect price Under monopolistic conditions, however, the effect upon price of the increased output must be accounted for The marginal revenue product then becomes the increase in the number of units produced by adding one more unit of a factor of production, multiplied by the price of the product *minus* the loss in revenue on all previous units of output which is occasioned by the decrease in price necessary to sell the increased output Under monopoly and monopolistic competition, the marginal revenue product will always be less than the marginal value product for any unit of a factor of production.

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[1] See Chamberlin, E H, "Monopolistic Competition and the Productivity Theory of Distribution," *Explorations in Economics,* pp 237 ff, McGraw-Hill Book Co, New York, 1936

Duplication of Services

Total employment of any factor or factors in an "industry" (roughly defined as a group of closely competing firms) may or may not be less than that would prevail in a similar industry operating under conditions of pure competition. If total employment is the same, or greater, the implication is that there are a larger number of firms, operating at less than optimum output, than would be the case under pure competition. This is the typical Chamberlinean solution. An important question arises here as to the nature of the cost curve which we have in mind. If the cost curve which is used is dependent for its declining slope upon some elements of fixed investment by the individual firm, then the solution is only a first approximation, and not a position of long-run equilibrium. It would then be possible over a period of time for the size of the fixed investment to be reduced and a new cost curve substituted for the old one, which new curve would represent least cost conditions at the saleable output. If the resulting profits attract more new firms to the industry, which duplicate the products of existing firms as far as possible, the individual demand curves of the old firms will tend to become more elastic. Repetition of this process would give an ever-closer approach to the conditions of pure competition. To the extent that selling costs are a necessary element, however, costs and prices, even in the final solution, will be higher than those under pure competition.

Definition of Firm

If Chamberlin's cost curve is a "planning curve" (most of his discussion would lead us to believe that it is a planning curve), then the declining phase of the cost curve for the individual firm must be explained by the indivisibility of the units of certain factors of production It may be remarked that Chamberlin draws most of his illustrations from gasoline stations and other retail establishments, where the proportion of indivisible units to total factors of production employed is probably much higher than in most manufacturing establishments. We should not be misled by what at first sight appears to be indivisibility of the "natural" units of the various factors of production It is true that we cannot hire half a man, but in many lines men can be and are hired for part time or for a few hours Half a machine is of no use, but in some lines machines need not be owned but may be rented for only the time they are required (harvesting machinery, for example) In chain store organizations it is possible to divide the services of high-salaried purchasing agents, advertising managers, and merchandisers among a large number of individual stores in the chain In a strict economic sense, the entire chain must be considered as one "firm" Nevertheless, from an accounting viewpoint, at least, it is entirely proper to consider each individual store as a "firm" in competition with various independent and other chain unit stores in its particular locality, charging a portion of the services of the general management to each individual chain unit as if they were hired services from an outside agency The so-called voluntary chains are actually operated much in this manner Individual ownership of stores is retained, but buying is placed in a pool, and advertising and some other services are performed by a central organization for the membership If monopolistic competition leads to chain store organization, and we regard the entire chain as the "firm," then Chamberlin's conclusion must be reversed The typical "firm" instead of becoming smaller is much larger

Employment of Factors

If total employment of factors of production under monopolistic competition is less than it would be if the industry were operating under conditions of pure competition, then the excluded units of the factors must seek employment in other industries Presumably the marginal productivity of these units will be less in the other industries to which they are forced to turn Thus they will have to accept a lower price or wage than they could have obtained if the monopolistic industry were operated under conditions of pure competition

It does not necessarily follow that factors of production which are excluded from one industry when conditions of monopolistic competition develop will have to seek employment in industries whose products are sold under conditions of pure competition They may be absorbed in other monopolistic industries In either case, however, they must accept a wage which is low enough to induce the new employer to make use of their services To the extent that the monopolistic industries are maintaining rigid prices for their products, the purely competitive industries with more flexible prices are apt to prove able to absorb the excluded factors more readily The movement of population from cities to farms during the last depression (although it was not caused primarily by monopolistic competition) is evidence of the ability of purely competitive industries to absorb workers at low wages (In most cases these were not cash wages, but the children returned to the farm, and the farm supported more people on a lower standard of living)

It must be noted that whenever monopolistic competition results in reduced employment in an industry, not only do the excluded units of factors themselves have to accept lower wages, but also they tend to drive wages down in the industries into which they are absorbed This situation is occasioned not only by the direct competition of the excluded factors for employment, but also by the fact that expansion of output in any industry which employs them will tend to drive down the price of the product and therefore to decrease the marginal revenue product of the previously employed factors in the expanding industries

The preceding discussion has reference to the development of conditions of monopolistic competition in an industry which had previously been purely competitive If an entirely new industry starts up under conditions of monopolistic competition, then the entire employment offered by this new industry may be a net addition to the total opportunities for employment of factors of production The result, then, is simply that these new opportunities for employment are smaller than they would have been if the new industry had sprung up under pure competition It may be, however, that the new industry would not start at all without the inducement of possible monopolistic profits In this latter case monopolistic competition must be given credit for the full amount of created employment

Selling Costs and the Problem of Distribution

Under monopolistic competition the use of factors of production in ways that represent selling costs may easily result in a larger output for a firm (and perhaps even for the industry) than would be the case under pure competition Lower production costs for the expanded output will result only where the individual firm, or the industry, is operating under conditions of decreasing costs Even in these cases, it is possible that some other combination of price cutting and lower selling costs might yield better results

For the economy as a whole, selling costs must result in a purchase pattern different from that which would prevail under pure competition (aside from that represented by the spending of their own salaries by advertising men and salesmen) or the whole expenditure would be a sheer waste If advertising and selling efforts by each firm and each industry simply "cancel each other out" and leave the public taste for products no different from what it would have been without these efforts, then the entire expenditure is a waste, *both* from the point of view of the individual firm and of society as a whole

If we grant that selling costs do result in a purchase pattern different from that which would have prevailed without them, then it remains to be shown that such a pattern is better than the one which would have prevailed without selling costs Any such judgment must be made, however, largely on the basis of noneconomic criteria Even by other standards, the issue is by no means clear-cut On the ground of public health, the friends of advertising may point with pride to the increased sale of oranges On the same grounds, the opponents may point the finger of scorn at the sale of fraudulent patent medicines On the grounds of aesthetics, the pros may point to the improved design of many articles of common use, while the cons will deplore the excessive standardization of other articles which results in mass ugliness Sponsored radio programs make both education and insidious propaganda available to the masses The reader must choose between the conflicting claims as best he can

Monopolistic Competition in Supply of Factors of Production

Many industries that are purely competitive, or that approach the conditions of pure competition in the markets in which they sell their products, may be dependent for some of their factors of production upon sources of supply which are more or less monopolistic in character Agriculture offers perhaps the best example of this type The primary markets for many farm products usually give a close approximation to the conditions of pure competition On the other hand, farm machinery is now supplied by an oligopoly, which at times has approached a pure monopoly. Moreover, owing to the importance of patents, oligopoly with differentiated products is probably the greatest degree of competition that may be expected in the supply of farm machinery Fertilizers, cotton bale ties, binder twine, barbed wire, and other farm capital goods have been subject to varying degrees of monopoly control

We have many examples of industries operating under monopolistic competition which buy their supplies or stock of goods from other firms which in their turn are monopolistically competitive At one time the most important function of the retailer was to bargain for the best merchandise at the lowest prices, and customers relied on his buying ability to obtain good merchandise for them Today, however, the tendency is for the retailer simply to buy the brands which his customers have already been induced to ask for by national advertising, and the retailer's function approaches that of being merely a convenient display and delivery place for nationally advertised goods

Diversion of Monopoly Profits to Suppliers of Factors

There are many interesting trade practices connected with the situations outlined in the two preceding paragraphs Here, however, we are most concerned, not with these practices in themselves, but with their effect upon the distribution of income The first effect which we notice is the diversion of what might otherwise be a retailer's profit into the hands of the manufacturer of the nationally advertised brand Whenever a nationally known brand obtains a sufficient hold upon the public taste, retailers are practically forced to stock the article, whether or not they wish to do so No cigar store can afford not to handle Lucky Strikes, Camels, and Chesterfield cigarettes Any grocer can name you a few score of "regular brands" of goods which he could hardly do without and still hope to remain in business When this situation exists, the manufacturer can advertise a retail price for his product and then charge the retailer a price which leaves him practically no operating margin This leaves the retailer only one source of profit on this type of article He may try to stock up heavily during periods of advancing prices and reduce his stock before prices decline Such planning, of course, requires a considerable amount of forecasting ability, but even this source of profits disappears if the manufacturer maintains a policy of rigid prices

On some types of articles where the customers are not so strongly affected by advertising and may be influenced by the retailer's suggestions, a different policy may be followed The retail price may be advertised by the manufacturer, but the retailer is permitted a larger markup in the hope that he will "push" this particular brand of goods The manufacturer really regards this wider markup as a form of selling cost used perhaps instead of a greater expenditure on advertising This is not the same thing as increasing sales by a lower price to the consumer, where the whole effect would be dependent upon the retailer's efforts

In this situation some retailers may act as expected and simply push the sale of the product at the advertised price Other retailers may see an opportunity to obtain a large volume of sales without so much effort by cutting a few cents off the advertised retail price If this actually results in increased volume, it would appear that the manufacturer should have no objection Quite often, however, there will be other stores in the same community which are not volume stores and which ordinarily require a higher markup They may then be in a position where they either have to meet the price cut or incur some ill will on the part of their customers Such a situation leads to the whole controversy over resale price maintenance by the manufacturer

Secondary Monopoly

Wherever monopoly exists in the supply of any factor of production, whether the factor happens to be a nearly complete consumers' good or some form of raw material or labor, the effects of monopoly practices are felt all along the line up to the sale of the finished product. For example, the building contractors in a certain city may happen to be honestly competitive with each other, but if there is a monopoly of certain building materials or of building labor, then the contractors will have to accept the price of the building material or labor as cost data in figuring their bids. The effects in restricted output are exactly the same as if the building supply company or the labor union were themselves setting the prices for finished buildings. The monopoly elements will be reaping the monopoly gains, the competing contractors being forced to restrict output against their will. If, on the contrary, the contractors happen themselves to have a monopoly through agreements for collusive bidding, then the building supply firm or labor union may be simply taking some of the monopoly profits away from them. Even here we cannot ignore the effect upon cost curves of the monopolistically supplied factors. The monopoly prices charged by a contractors' "ring" are apt to be higher and the output lower if they in turn must buy some of their supplies at monopoly prices.

Monopolistic Elements in the Purchase of Factors of Production

Sometimes we encounter situations in which there is a monopoly element in the market for factors of production on the buying side. One firm may be the sole employer of labor in a community, or it may employ a vast proportion of the labor. One firm may be the sole purchaser of a certain type of mineral. Often a chain-store organization or a large automobile manufacturer may buy the entire output of certain factories.

It is quite commonly assumed that firms in a monopoly position of this sort will proceed to exploit the factors of production of which they are the sole buyers. (We have defined exploitation as paying factors less than the full value of the marginal product.) Undoubtedly much exploitation does take place, but we should not ignore the elements which may tend to prevent or limit such exploitation Above all, the firm is vitally interested in maintaining a continuous and reliable supply of the factors of production A chain which builds up a market for a certain product cannot afford to have the manufacturer go out of business He may in some cases force the manufacturer to integrate with him A firm which exploits a cheap labor supply may some time find that workmen are leaving the town Thereupon they may have to offer very high wages to induce other workmen to move in, or they may have to go through a costly process of moving to another locality The greater the amount of fixed investment, the greater will be the danger of loss in this situation

Exploitation by a monopsony (single buyer) may take the form of price discrimination That is, instead of paying the same price to all units of a factor, each unit will be taken at the lowest price it is willing to accept This practice is most easily followed in a situation where the various sellers are not in a position to compare prices with one another In the case of labor particularly, discrimination may engender so much ill will as to cancel much of the gain from its practice

Some Aspects of the Theory of Bilateral or Successive Monopoly

We have been deliberately discussing some examples of bilateral or successive monopoly in order to acquaint the reader with the nature of the problem involved The exact theoretical statement of this problem has been given us by Dr A C Hoffman, of the Bureau of Agricultural Economics, United States Department of Agriculture [2]

"As an hypothetical example of bilateral monopoly, we may take the case of two firms, one having complete control of the processing of a food product and the other of its retailing For simplicity it will be assumed that no other handling operations are involved, or that if they are involved, they would be competitive

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[2] Monograph No 35, ' Large-Scale Organization in the Food Industries," Temporary National Economic Committee, 76th Congress, 3rd Session

"To illustrate the first principle which would govern the outcome in such a situation, it will be convenient to refer to Figure 1 of the diagram In this diagram, D^1 D^1 has been derived from the consumers' demand curve by the deduction of the retailing costs, and similarly *SS* represents the farm supply curve plus the unit costs of processing the product Equilibrium under competition would, of course, obtain at point *P*, with quantity *OQ* produced and offered to consumers If either processing or retailing were monopolized while the other remained competitive, equilibrium would come at point P^1, with the supply (OQ^1) now equal to half that under competition

"Suppose now that separate and independent monopolies developed in each field The most profitable policy for both, assuming that they could hit upon some method of dividing the total quantity of monopoly profit to be derived, would be to offer quantity OQ^1 This is, of course, the same outcome as that under single monopoly

"But it is quite improbable that the monopolists would be able to agree on how to divide this total profit Jockeying between them would almost certainly develop, each trying to obtain a larger share of the profit by widening his profit margin per unit To see what would happen now, let us turn again to Figure 1

"We may start by assuming that the processor is first in the field with his monopoly, in which case he is offering a supply of OQ^1 to competitive retailers at a price of Q^1P^1 All the monopoly profits are his But now some firm contrives to get control of retailing Obviously the retail monopolist will not permit equilibrium at point P^1, since this would leave him nothing above his actual costs of doing business

"On the expectation that the processor will maintain his price at Q^1P^1, the retailer will put his margin above his costs equal to P^2p^2, which will maximize his total profit under the given conditions

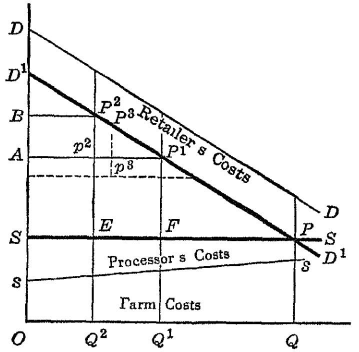

FIG 1—In no event would the food supply be larger under successive monopoly than under single monopoly, and it would probably be much smaller

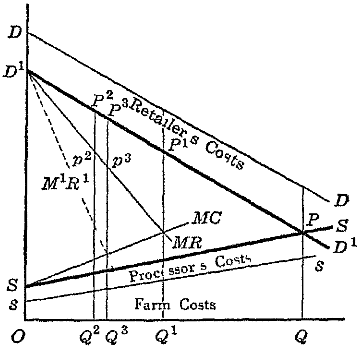

FIG 2—The greater the number of successive monopolists and the less they conspire together to increase their combined profit, the worse will be the plight of farmers and consumers (Figures 2, 3, and 4)

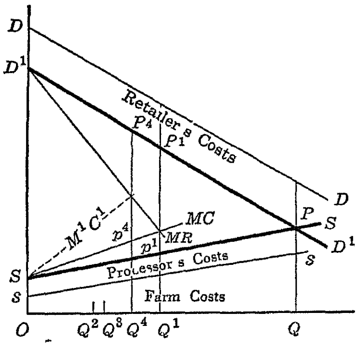

FIG 3

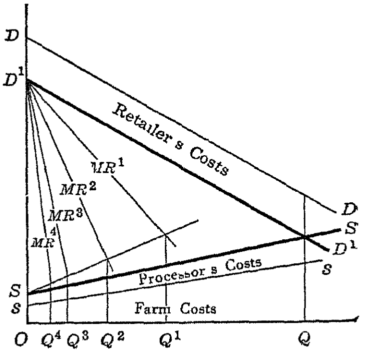

FIG 4

Bilateral or Successive Monopoly

"But see to what this leads Supply will be restricted to OQ^2 [half that under single monopoly and only one-fourth that of competition, using straight-line relationships as has been done in this diagram (with curvilinear relationships, the results would be qualitatively the same, however)] Clearly everyone is worse off than before, except the retail monopolist who now has some profit represented by ABP^2p^2 in Figure 1

"The unfortunate result just demonstrated is not changed in principle by different assumptions which either monopolist might make as to the price of the other Suppose that the processor, after seeing what happened when he tried to maintain a price of Q^1P^1, decided to lower it somewhat, the retailer now making his profit margin P^3p^3 This will result in slightly larger supplies, and everyone is better off than before, but supply is still more restricted than it would have been under single monopoly

"We have now defined the limits within which the supply will vary, depending on the policies of the two monopolists But we do not need to drop the matter here If the two monopolists act independently of each other, there appears to be a determinate solution from which neither monopolist would find it to his advantage to deviate Or, rather, there are several determinate solutions, depending on the particular assumptions made

"These determinate solutions are demonstrated in Figures 1 and 2 of the diagram It is assumed in Figure 2 that the processor fixes a price to which the retailer adjusts; and in Figure 3, that the processor adjusts to the retailer's price The solution in both cases involves the use of marginal revenue (*MR*) and marginal costs (*MC*) curves In both diagrams, equilibrium under single monopoly will result in a supply of OQ^1, since it is here that marginal cost is equal to marginal revenue for the monopolist

"When the second monopolist (the retailer) comes onto the scene, he will presumably find the processor selling at a price of Q^1P^1 (Figure 2) The retailer would then try to maximize his profit by fixing his profit margin at P^2p^2 (where his marginal revenue as described by *MR* is just equal to the price of Q^1P^1 fixed by the processor). Supply is then limited to OQ^2, which, as we have already seen, is the lower limit of restriction for two successive monopolists

"The processor will now find it to his advantage to lower his price slightly so as to increase his total profit This he would do until final equilibrium would result in a supply of O^3Q^2 From this point it will not pay the processor to deviate, since here his marginal costs will equate the return which he can expect from the retail monopolist

"If it is assumed that the retailer fixes the price to which the processor must adjust, the solution is that shown in Figure 3 The processor, being a monopolist, will adjust his operations so as to offer varying quantities of supply at prices described by his marginal cost curve (MC) The marginal costs of the product to the retailer are then shown by M^1C^1, which is derived from MC as MC was from SS The retailer will thus seek equilibrium at the point where his marginal return equates M^1C^1, which in Figure 3 results in a supply of OQ^4.

"The outcome so far as farmers and consumers are concerned is about the same in Figure 2 as in Figure 3, and it would have been exactly the same if the slopes of D^1D^1 and SS had been equal in both cases The effect on the monopolists themselves, however, is vastly different When the processor was assumed to fix the price to which the retailer was forced to adjust (Figure 2), the retailer got only a small part of the monopoly profit, but when the assumption was reversed (Figure 3), it was the processor who got the lesser share

"Instead of assuming that the monopolists fix the prices at which they buy and sell to each other, it might be assumed that they fix their margins In this case the equilibrium outcome would be slightly different from the one we have described above, but the basic principle would be the same

"Three or More Successive Monopolists

"We pass now to the case of three or more successive monopolists, one above the other The principles according to which the outcome is finally determined are much the same as those we have just deduced for the case of two successive monopolists, except that supply is almost certain to be limited even further.

"The solution for three or more successive monopolists is shown in Figure 4. Again we use marginal revenue and marginal costs curves, as in Figures 2 and 3. As we have shown, equilibrium for a single monopolist would give a supply of OQ^1. If a second monopolist enters the picture, supply will be further limited to OQ^2.

"Now suppose we introduce a third monopolist. In order to get some share of the profit, the third monopolist will increase his margin, and in doing so he will tend to limit supply still further. He will not get much profit because, according to our assumption, he must operate within the restricted limits of supply left to him by the first two monopolists. The final outcome for three monopolists as shown in Figure 4 will find supply limited to OQ^3 (or thereabouts, depending on the relative slopes of consumer demand and supply costs).

"On the assumption that the first monopolist fixes a price to the second monopolist, and the second to the third, the third monopolist will get the least profit. The advantage among the monopolists would be reversed (as we have shown in Figures 2 and 3) if the fixing of price ran in the opposite direction.

"The same sort of solution could be shown for any number of successive monopolists, with the situation becoming progressively worse for farmers and consumers as more monopolists managed to insert themselves into the marketing system.

"A Modification of the Assumptions

"It may be objected that the assumption of complete monopoly at successive stages in the marketing system is very unrealistic, and so it is. But so, for that matter, is the usual textbook assumption of horizontal monopoly.

"The highly restrictive tendency of successive monopoly would be modified, but not changed in principle, by the assumption of monopolistic competition rather than of complete monopoly in any or all of the marketing functions

"Suppose, in our earlier example, that retailing were carried on under conditions of monopolistic competition The retail margin would then be determined in accordance with the principles of ordinary oligopoly, which means that it would vary from that of competition to that of complete monopoly, depending on the assumptions each firm made as to the effect of its actions on the others Similarly the processing function might also be only partially monopolistic, which would lead to a further modification of the outcome Under these conditions supply might be less restricted than under complete monopoly in each function, but more restricted than if the oligopolists were vertically integrated

"Theory of Successive Monopoly Contrasted to That of Oligopoly

"The solutions shown for successive monopoly are vastly different from those demonstrated by Chamberlin and others for horizontal monopoly and monopolistic competition Those familiar with the main outlines of theory will recall that under oligopoly the outcome as to price and supply will vary from that of monopoly to that of pure competition, depending on the assumption each firm makes as to the effect of its policies on those of its competitors It is unnecessary for our present purpose to go into the various refinements of this principle Its import for us here is that in no event would the public be worse off under oligopoly than under complete monopoly, and that in most cases it would fare much better[3]"

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[3] This statement may be correct under the peculiar assumptions stated by Dr Hoffman, but there may be some situations under which a horizontal monopoly might achieve greater output and set lower prices than an oligopoly This point, also, ignores the possibility of monopoly under some form of reorganization which might be expected to result in lower prices than those charged under oligopoly with a differentiated product

Monopsonistic Competition

We may define monopsonistic competition as a situation in which sellers prefer to sell to one buyer rather than another even though all buyers are offering the same price Like monopolistic competition, it is non-price competition, but on the buying side of the market Several elements may account for this preference of one buyer over another One buyer may have a better credit rating One buyer may have a better reputation for accepting goods when delivered, or he may not make claims for minor or non-existent damages when other buyers are in the habit of making such claims A buyer who is a "steady customer" and may be counted on for more business in the future may be preferred to one who buys only occasionally A buyer who is willing to take prompt delivery may be preferred to one who attempts to postpone deliveries A buyer who purchases in large volume may be preferred to one who buys smaller orders

These elements might be considered as contributing to a "good will" on the buying side of the market quite similar to the good will which a firm may possess among its customers In many ways this good will may be a distinct advantage to the firm which possesses it When supplies are limited at current prices, but sellers are not quite ready to raise prices, the favored buyers will obtain the available supply at the low prices Favored customers may be warned in advance when a price increase is about to take place In times of brisk business, favored customers may receive prompt delivery on their orders, while less favored customers may find their orders delayed Favored customers may find that more care is taken to see that their orders are filled carefully, and that the goods are better inspected before they leave the sellers' hands Many of these practices may seem of small moment when considered alone, but, added up, they may contribute importantly to a favored firm's profits or to its ability to remain in business in the face of keen competition. Although we have called these firms "favored," it should not be implied that there is anything unethical or uneconomic in this sort of favoritism. The fact that a firm is favored because of its reputation for honesty or for paying its debts promptly could hardly invite censure from even the most violent opponents of the present economic system. There are, of course, other forms of favoritism that are less legitimate.[4] Nor can we even assume, without exception, that "honesty is the best policy" in this instance. In some industries firms that are notorious for breaking their contracts during periods of falling prices still survive and prosper.

Monopolistic Competition and Final Equilibrium

Under pure competition we described a state of stable equilibrium as one in which no firm had any motive to expand or contract its output or to enter or leave any industry, and in which all resources were fully employed. There are also no pure profits in a state of equilibrium, although there will be rent for scarce factors.

If we regard these as the criteria for stable equilibrium regardless of the nature of competition, then monopolistic competition offers us some very difficult problems. An industry may be in full equilibrium in the Chamberlin sense—that is, each firm is operating with its average revenue curve tangent to its average cost curve and at zero profits. This need not mean, however, that no new firms will enter the industry. Even though existing firms are making no profits, a new firm may start up with somewhat different selling methods and actually show a profit.

We might attempt to squirm out of this difficulty by so formulating our definition of an industry that each firm with a differentiated product would be considered a different industry This is no solution to the problem, for it simply leaves us with the possibility of new "industries" springing up *ad hoc* in the same manner as new firms emerged under the concept of industry as used in the previous paragraph [5]

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[4] For example the old secret rebate system.

Another solution might be to rule out any changes in selling methods in the same manner and on the same grounds that we rule out changes in methods of production and new inventions from the concept of equilibrium under pure competition When we consider, however, that so small a difference as the personality of the storekeeper may be the element which gives rise to successful product differentiation, we must be arbitrary indeed to rule this out as a new method of selling

Alternative End Results of Monopolistic Competition

1 *The monopoly solution*

We might accept Triffin's thesis of regarding each firm as being an industry in and of itself if this would lead us simply to a situation of universal monopoly We might then, as has been pointed out, recast our general equilibrium theory in terms of the classic theory of general equilibrium as explained in Chapter XVIII To have this solution consistent, however, the entire competition should be directly for the consumer's dollar, but the individual firms which we are calling individual monopolies under this approach are not by any means so unconscious of the activities of rival sellers as to make a perfect monopoly solution possible As long as many of the firms are producing goods that are closely substituted for each other, they will not act as if they were competing solely for the consumer's dollar, but will in fact take some account of the actions of their nearest rivals This leaves us in a world which is partly a close approach to pure monopoly and partly a situation which is typical of Chamberlin's solution to the problem

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[5] C F Triffin's *Monopolistic Competition and General Equilibrium Theory,* Harvard University Press, 1940

2 *Duopoly with and without product differentiation*

From this point on, as well as in the preceding section, our whole problem hinges largely on the degree of successful product differentiation

If the two firms in a duopoly have important enough differences in their products, then they may, for a considerable range in output, depend upon consumers bound to them by the production difference which exists To the extent that this is true, there is no point in treating two such firms differently from any other two nearly perfect monopolies To the extent that the product is standardized or that the differentiation makes no impression on the minds of the buyers, we are forced back upon the pure duopoly solution which, according to many economists, can become stable only by the merging of the two firms into a single monopoly

3 *Oligopoly with standardized products*

This is a situation which must be regarded as extremely unstable Its continuance is dependent upon some means of prevention of entry of new firms, otherwise, the privilege of free entry would reduce the situation to one of pure competition If there is some means of preventing entry (such as control of raw materials), then there are strong possibilities of eventually combining into a single monopoly, with perhaps some attempt at apparent competition whenever and wherever the public attitude against monopolies happens to be strong

4 *Oligopoly with differentiated products.*

This condition, while somewhat more stable than that of the oligopoly with standardized products, again cannot be considered as stable unless there is some means of preventing the entry of new firms If such means exist, the oligopoly may persist for some time, but there is always a danger, at least as far as ownership is concerned, of a merger among the firms which would lead it in the direction of monopoly ownership, although to the extent that the differentiated product had sufficient individual market appeal, the separate brand names and other distinguishing features might be retained

If there is no effective barrier to the entry of new firms, the existence of profits may be sufficient to allow the entry of some firms which partly duplicate the services of the old firms and/or differentiate their production still further The end result here would, of course, be monopolistic competition

5 *Monopolistic competition*

What we are assuming here is monopolistic competition in a perfect market Therefore, we are ruling out all of the "economic friction" or market imperfection which was considered under the classic general equilibrium theory to be an important element in preventing eventual complete adjustment to the pattern of the theory However, for monopolistic competition to attain its equilibrium situation in the Chamberlinean sense (tangency of average revenue to average cost curves with no profits), it must be possible to prevent the entry of still more firms into the industry

Summary and Conclusion

We have noticed that the indispensable condition of equilibrium in each of the situations we have discussed is that no new firms be induced to enter the industry, or, if you prefer to consider the firm and the industry as identical, that no new firms offering closely competing products be encouraged to start up If the existing firms are making no profits, this fact is considered an adequate deterrent to the entry of new firms under the classic equilibrium theory The very existence, however, of the concept of differentiated products which are close substitutes, an integral part of the doctrine of monopolistic competition, violates the possibility of this solution

Even though all firms or all industries (depending upon the definition) are making no profits, it is still possible for a new firm to spring up, offering a slightly differentiated product and employing selling methods that may actually enable it to make a profit

The more we go into the problem, the more we are forced to conclude that perfect equilibrium is an impossibility under conditions of monopolistic competition The best we can hope for is a neighborhood of equilibrium where the motives to change will be few and small It may still be found that firms making losses will tend to drop out of their industry, and that industries, whether making profits or not, may be subject to competition by new firms Since monopolistic competition tends somewhat to obscure the immediate effect of changes in demand, it might be expected that the situation would result in fluctuations of wider amplitude in employment of resources and in smaller price changes than those associated with pure competition

If we are to choose between the classic general equilibrium theory and an attempt at an equilibrium theory under monopolistic competition, neither solution is apt to be satisfactory to us in the present state of development of our science The classic theory makes so many unrestricted assumptions that it becomes a mere "thinking tool" The monopolistic competitive doctrine faces boldly the difficulties which are evaded or avoided by the classic doctrine At its present state of development, it can be considered to be a more accurate theoretical analysis of the conditions of the economic world, but it is not so far consistent with any perfect equilibrium solution. This should not discourage the reader. Rather, it should lead him to realize that there are many problems of economic theory which are still unsolved. and to which he can devote his own attempts at solution.

CHAPTER XXVII

Principles of Taxation

FROM the standpoint of their general economic significance, taxation and public expenditure should not be treated separately but should be considered rather as separate parts of one subject For taxation is merely a means of raising revenue to meet the general or specific expenditures of the state. Economically, taxation involves taking money from some people and giving it to others to spend, but the net effect is that the tax-gathered money is spent differently than it would have been had people been allowed to use this money as they saw fit The ordinary justification of this process of taxation and expenditure is that the collection of taxes from some people and the expenditure of the proceeds by the government results in a greater well-being than would have occurred had the individuals been allowed to make their own decisions as to the use of their money

The Budget

A statement of anticipated income and anticipated expenditures drawn up by a government for some fiscal period (usually a year) is called the government's budget If income and expenditure are equal, the budget is said to be balanced, if income exceeds expenditure, we call the excess a surplus, if expenditure exceeds income, the difference is called a deficit. Surpluses and deficits may occur either as the result of deliberate planning or as the result of circumstances which were unforeseen when the budget was drawn up The government, for example, may plan its expenditures to be less than its income in order to have the surplus usable as a sort of reserve for emergencies which may arise, to repay old debts, or for any other purpose, or the surplus may arise simply because the income proves to be greater or the expenditures less at the end of the period than was anticipated when the budget was drafted Thus an unforeseen deficit will occur whenever revenues fall below anticipations or when expenditures are undertaken which were not allowed for in the budget A planned deficit arises when the government decides that certain expenditures are so desirable that they should be undertaken regardless of the fact that it is impossible (or politically inexpedient) to pay for them out of current tax revenue In this event, it must borrow to meet the excess expenditures

Government borrowing raises so many other questions that we shall consider the subject in Chapter XXXI For the purposes of this chapter, we shall assume that the budget is balanced. For the time being, we shall also make the further assumption that all the government expenditures are desirable We are thus left free to concentrate on the economic aspects of taxation itself

Theories of Taxation

Several theories have been developed concerning the manner in which taxes should be levied by the states Of these the principal ones which merit attention are called the ability theory, the benefit theory, the diffusion theory, and the economy theory As we shall discover later, it is not always possible to devise a tax which will conform to all of these theories But before beginning the discussion, some attention must be paid to different types of taxes The following table will indicate the three fundamental types

TABLE I

EXAMPLE	$1,000 INCOME		$10,000 INCOME		$100,000 INCOME		TYPE OF TAX
	Tax in dollars	Tax as per cent of income	Tax in dollars	Tax as per cent of income	Tax in dollars	Tax as per cent of income	
Poll Tax $10	10	1 0	10	0 1	10	0 01	Regressive tax
Tax 1% of Income	10	1 0	100	1 0	1,000	1 0	Proportional tax
Graduated Income Tax	5	0 5	250	2 5	12,500	12 5	Progressive tax

A regressive tax is one which declines *as a per cent of income* as incomes become larger In the example we have assumed a flat tax per head—constant in *amount* for all incomes. Note, however, that even a tax which increases in amount for higher incomes but does not increase in full proportion to the increase in income will still be regressive as a percentage For example, suppose a tax of $10, $90, and $800 for the three income groups listed in the table The tax as per cent of income would then be 1 0 per cent, 0 9 per cent, and 0 8 per cent respectively—still regressive taxation

A proportional tax absorbs an equal *percentage* of income from all income groups

The progressive tax is higher both absolutely and as a percentage as income increases Sometimes (as in our Federal personal income tax), a part of this progression is achieved by exempting a certain minimum amount of income from the tax as well as by imposing higher percentages on the higher income brackets

The Ability Theory

The ability theory states that a tax should bear most heavily on those who are best able to pay it At one time the possession of property was regarded as a good indication of the ability to pay taxes This was probably true, in a rough degree, in the days when real estate constituted not only the principal form of wealth, but also the principal form of income-producing property Moreover, the existence of real estate is obvious to the naked eye and it is comparatively easy (economy theory!) to locate the owner for the purpose of collecting taxes from him It is these two considerations which undoubtedly account for the survival of the real estate tax as such an important part of our state and local systems of taxation Very early in its history, however, the real estate tax was found to be inequitable and many attempts were made to improve upon it in order to make it to conform more closely to the ability theory Obviously, a flat tax of so much per acre on all farm land, good and bad alike, would not result in a just tax burden as between different land owners To meet this problem, the tax on farm land was changed from a flat tax per acre to a tax based on assessed valuation, which supposedly took into account the earning power of the land

In the case of urban dwellings, the application of the ability theory to real property in a misguided manner resulted in many curious taxes, some of them having exceedingly unfortunate results For example, in England at one time houses were taxed according to the number of windows they possessed The attempt to evade this tax by decreasing the number of windows resulted in a great number of badly lighted and ill-ventilated homes The bricking-in of windows and the building of houses with fewer windows greatly reduced the amount of revenue which accrued to the state Many other curious and unwise tax laws can be found in the old statute books Even today, however, the regular practice of the assessors of raising the assessed valuation of a piece of property when painting and modernization are done probably accounts at least in part, for the squalor of many of our tenements.

In recent years we have come more and more to consider the income of an individual, rather than the property which he possesses, as the proper measure of his ability to pay taxes This brings us to the question of graduated *versus* proportional taxation A proportional tax would levy the same percentage rates on all incomes regardless of size A graduated tax levies a *higher* rate of tax on higher incomes

A little reflection will show that the progressive (or graduated) tax conforms far better to the ability theory than the proportional tax It must be obvious that a tax of 40 per cent, or $400,000, on a person with a $1,000,000 income would impose a far less strain upon his ability to pay than a tax of 10 per cent, or $100 00, on a person with an income of only $1,000 It is also argued that the progressive tax imposes a more equal sacrifice upon all taxpayers The measurement of such psychic sacrifice is, however, highly conjectural

Some opponents of the graduated income tax have complained that it discourages initiative and decreases investment Thus baldly stated, this argument is utter nonsense As long as the tax is so graduated that an individual will receive a higher net income after taxes are paid on a higher income than he will after they are paid on a lower income, there is no discouragement for him to attempt to earn the higher income I am sure that you and I would both rather be in the position to pay a tax of 50 per cent on a million dollar income than we would to pay a tax of 30 per cent on a $100,000 income

There is an element of truth in the argument that a graduated tax discourages investment If the graduated tax imposes a sufficiently serious burden, the person with a very large income may choose to invest all or a very large part of it in tax-exempt government bonds The answer to this, however, is not to repeal the graduated income tax, but to remove the income tax exemption privilege from all forms of government bonds

The risk element must also be considered Investments that promise the most profits usually involve the greatest risk of the principal invested As higher income taxes cut down the possible net return which may be realized from such investment, they tend to discourage the undertaking of risks We may see this more clearly by considering it as the odds of a bet Suppose there is a proposition with equal chances of success or failure that requires $50,000, but which will double my money if successful, and there is no income tax This is an even-money bet Now suppose that the government will tax my income 50 per cent if the speculation is successful I must then invest $50,000 in order to make $25,000 (after tax is paid). In other words, I have to give two-to-one odds on an even-chance bet The limitation on possible profits is thus a deterrent to risk-taking

An objection to the removal of the tax exemption privilege on government bonds has been made on the grounds that it would force the government to pay higher interest rates This is not, however, so serious an objection as would appear at first sight A comparison of the rate of yield on tax-exempt government bonds with the yields on industrial bonds which receive a triple A rating by *Moody's Manual* shows only a slight difference over a period of time So long as safety of investments is the prime requisite in the minds of many investors, the bonds of a solvent government will continue to command high favor This is evidenced by the fact that many charitable foundations whose entire income is untaxable nevertheless retain large portions of their funds invested in government securities Furthermore, in times when a "strike of capital" is alleged, the removal of the tax exemption privilege from government securities might encourage more people to invest in private business, thus tending to create more employment and saving the government the necessity of borrowing more money for relief purposes

The presence of the tax-exempt privilege on government securities in our income tax structure is certainly a contradiction of the ability theory. The person who draws an income of $50,000 a year in interest on government securities is obviously as fully able to pay a tax as an individual who draws a similar income as a salary for services to an industrial corporation. Indeed, the bond holder is really in a better position to pay a tax, since the business executive will lose his income whenever he is unable to perform his services or whenever the company decides to discharge him, the bond holder's income, in contrast, will go on regardless of other considerations so long as the government remains solvent.

The Benefit Theory

The benefit theory of taxation argues that taxes should be proportioned among different individuals in accordance with the benefits received from governmental activities. In its narrowest construction, this theory relates specific taxes to specific government expenditures. For example, the cost of laying water mains by a municipality is often assessed directly against the property owners whose property connects with the main. In the case of some improvements, such as new streets, the strict application of the benefit theory is apt to prove difficult. For instance, since all the citizens are free to use the new streets, it is obvious that the full benefit of the construction does not accrue to the adjoining property owners alone. This problem quite often receives a rough rule of thumb solution by simply assessing half of the cost of the streets to the adjoining property owners and the other half to the general taxation fund of the municipality. However, this solution still does not conform strictly to the benefit theory. Those property owners in the next block or in the immediate surrounding neighborhood will obviously derive more benefit in the use of the new streets and in the enhanced value of their property than, will accrue to property owners located in more distant parts of the city Some communities have attempted to meet this problem by assessing the cost in inverse proportion to the distance from the improvement Regardless of the method of assessment adopted, it will be difficult to prove that it is in exact accordance with the benefit theory

Another tax that is in rough conformity to the benefit theory of taxation is the tax on gasoline, to the extent that all the receipts are spent on public roads and none are diverted to the general revenue of the state However, since the damage done to roads by trucks is probably greater in proportion than the damage done by pleasure vehicles when compared to their respective rates of gasoline consumption, the benefit theory is not strictly applied by a flat tax per gallon on gasoline This deficiency is made up in part by charging the trucks a higher license tag fee than is charged for pleasure cars Since different trucks travel different mileages over the public roads, a license tag fee, even though based upon the weight of the truck, is not strictly equitable Diversion of gasoline taxes to uses other than roads violates the theory entirely

In the case of some services performed by the government, it is simply impossible to apply the benefit theory of taxation For example, take the public health service of a municipality It is impossible to determine who would and who would not have contracted smallpox in the absence of free and compulsory vaccination, or who would or who would not have contracted diphtheria in the absence of quarantine laws. Consider public playgrounds as another area where the benefit theory cannot be applied People who live in the near neighborhood and have children feel that they derive a great benefit from the existence of the playground On the other hand, people who live immediately adjacent to or across from the playground may feel that the noise made by the children detracts from the value of their property The reader can think of many other kinds of services in which it is difficult or impossible to apportion the cost of the service in proportion to the benefit conferred

A much more liberal interpretation of the benefit theory is advanced by some authors and disavowed by others This interpretation advances the thesis that in contrast with those with smaller incomes or smaller amounts of property, those with the greatest incomes or the greatest amount of property derive much more benefit from governmental laws protecting private property and enforcing contracts, and from the efforts of the police force and of the army and navy in protecting the actual holding of private property This interpretation of the benefit theory is then made an additional argument to the ability theory in advocating a graduated system of taxation A very plausible argument can be made along these lines However, when we come to consider the activity of the police force and the army and navy in protecting human lives as well as property, the application of the benefit theory becomes difficult and doubtful It would seem that the ability theory alone would constitute an adequate defense for a graduated system of taxation without having recourse to a somewhat doubtful interpretation of the benefit theory ✓

Before turning to another subject, it may be well to point out that there are some charges made by governments for services rendered which cannot properly be called taxes at all Such, for example, are the charges made for registering deeds Where the charge simply covers the cost of the service rendered, such a charge is not a tax but a fee No one is required to register a deed to property, but the registration of the deed makes it easier to prove the legal ownership The county usually performs this service and charges a fee for it which covers its cost Similarly, when a municipality furnishes the water supply and charges in proportion to the cost of the service rendered, such a charge is not a tax but a fee In many other cases this distinction may be more difficult to draw

The Diffusion Theory

The diffusion theory (sometimes called the principle of the broad base) postulates that the tax burden should be spread over as many people as possible The implication behind this is that the taxation of more people will mean that more people will take an interest in the government activity and will attempt to curb government extravagance To the extent that this implication is true, the wide diffusion of the tax burden is particularly desirable in states which have universal suffrage If each individual is made to realize that he must bear a share of the cost of government, he may be more hesitant to vote for foolish expenditures or to vote for legislators who propose foolish expenditures In order to make this principle effective, however, the taxes must be levied in such a way that the individual realizes the full burden of the tax that he is actually paying Indirect taxes which are concealed in the price of the product have no merit in this respect It is even difficult for trained economists to determine exactly how much of a real estate tax is being paid by the landlord himself and how much is being passed on to the tenant in the form of higher rental Consequently, many renters of dwelling space may vote for municipal expenditure without realizing what proportion of such costs they themselves will actually have to pay in the form of higher rents

The Economy Theory

The economy theory of taxation postulates that as little as possible of the proceeds of a tax should be expended in actually collecting the tax and as much as possible should be available for the general revenues of the state In the case of some types of taxes, the economy theory and the diffusion theory will be found to be in contradiction to each other Ordinarily, the fewer the sources from which a tax must be collected, the less will be the cost of the collection in proportion to the total receipts. Thus, in the case of a tax on a manufactured article, the cost will be less if it is collected at the factory than if it is collected from wholesalers, and much less than if it is collected from retailers. It is sometimes claimed in such a case that diffusion is achieved by passing the tax all along the line to the consumer in the form of a higher price for the finished product. We shall discuss later under what circumstances and to what extent tax shifting may take place. For the moment let us grant that a full shift of the tax does take place and that the final consumer does pay the full amount of the tax. If under these circumstances the tax is concealed in the price of the product, the end sought by the diffusion theory is still not fulfilled, for if the consumer is in ignorance of the amount of tax he is paying, he will not thereby be motivated to demand governmental economy. For example, the Federal revenue stamp on a package of cigarettes bears merely the picture of DeWitt Clinton and the words "twenty cigarettes" but states no amount of tax, so that an individual would have to look up the U. S. Internal Revenue laws in order to realize that if he smokes a package of cigarettes a day, he is paying about $30 a year to the Federal Government.

The income tax is another example of a tax in which the economy theory and the diffusion theory may conflict. At present, only a minority of our citizens pay this tax. However, if the exemptions under the income tax were drastically lowered, say to $500 for a single man and $800 for a married man, and at the same time the rate of tax imposed on these new taxpayers were made much lower than that paid by present taxpayers (to conform to the ability theory), it would be found that there would be large numbers of people paying income taxes of 25 or 30 cents apiece. Against this we would have to set the fact that the probable cost of sending out income tax blanks, receiving the returns, auditing them, and checking for possible violations would likely be in the neighis that the revenue from a tax should remain fairly steady from year to year, or that it should be such that it can be counted upon fairly certainly at least a year or two in advance If the revenue which a tax yields is fluctuating and uncertain, the government is apt to make expenditures, counting on estimated receipts from a tax, and then find that the returns are less than anticipated, thus giving rise to unforeseen deficits The duties on imports furnish us with examples both of some of the steadiest and some of the most violently fluctuating forms of tax revenue return The degree of stability of returns from import taxes varies both with nature of the product taxed itself and with taxing policy of the government In general, the steadiest return from import taxes will be yielded by those commodities whose consumption is a matter of habit, or varies little from year to year, and which are not produced domestically For example, the import tax on tea has been the steadiest form of revenue for the United Kingdom throughout its history Taxes on sugar, coffee, and similar products are likewise steady producers of revenue On the other hand, commodities whose purchase is a matter of fad or fancy are subject to wildly fluctuating degrees of revenue return—an import tax on batik shawls or mahjong sets might yield a fabulous return one year and shrink to zero the next

For import taxes to constitute reliable sources of revenue, the government must so design the tax that it will be a revenue producer This means that the government must give up all idea of a protective tariff in connection with its revenue policy, for the greater the degree of protection afforded by a tariff, the fewer goods will be imported and the less the revenue will be

The principles to be followed by a government in designing a tariff to raise revenue are quite similar to those to be followed by a monopolist in determining his best monopoly price In seeking the greatest return, the government will set its tax at such a point that the tax per unit times the total number of units imported would yield the greatest total revenue Too low a tax will mean that the government is sacrificing some of the revenue which it possibly might have obtained from a commodity Too high a tax will discourage imports either by decreasing domestic consumption or by encouraging domestic manufacture of the product and so will decrease the total revenue accruing to the government The analogy to monopoly net return is practically perfect In the days when England's tariff was designed primarily to produce revenue, a very simple device was adopted to avoid fluctuations in the returns due to domestic manufacture. Whenever a tax was placed upon the importation of a certain product, a similar tax was likewise placed upon its domestic manufacture Thus, the government received its return regardless of whether the products were imported or manufactured at home The problem then was simply the one outlined above, that of placing the tax rate at the point of greatest possible return It should be noted that the imposition of a tax on domestic manufacture equal to the import tax on an article is a complete negation of any idea of protection, as far as the tariff is concerned, the foreign and the domestic producer are placed upon the same competitive basis

The income tax, although conforming well to many other theories of taxation, is not reliable as a steady producer of revenue The returns from this tax tend to fluctuate upwards and downwards with the movements of national income in the business cycle It is not always possible or desirable for a government to expand and contract its expenditures in accordance with its receipts from the income tax Indeed, if government expenditure is to be used as a means of alleviating business depression, it must be adjusted upwards and downwards exactly opposite to the fluctuation of the business cycle and of the private national income This leads to the suggestion of government borrowing in periods of depression and repayment of government debts in periods of prosperity, which is considered in Chapter XXXI

Simplicity of Tax Computation

Another requirement of a good tax is that it should be fairly easy for the average individual to determine the amount of the tax that he should pay This requirement of simplicity offers many advantages a tax which is simple to compute is more apt to be considered a fair tax and hence the motives to evade it are less, simplicity of computation reduces the number of suits which are brought in the court on interpretations of the tax law, consequently reducing the expenses of litigation both to the government and to private individuals, a simply drawn tax law is always far less expensive to administer than a complicated one

The relative complexity of the American income tax structure arises from the fact that it is a tax on net income, and from the fact that no standard methods of accounting procedure are universally used by all individuals and corporations Hence the Treasury is driven to the necessity of laying down more or less arbitrary rules of what does or does not constitute a legitimate expense or loss which may be deducted from gross income in order to determine net income These rules must be applicable both to the proprietor of a corner candy store and to the president of a large steel corporation The inclusion under the definition of income of increase in value of unsold property, and the allowance of deductions for losses in value on unsold property, further complicate the problem Even professional accountants are apt to differ widely in their estimates of the value of a given piece of property and of the change in value which has taken place during a fiscal year. The attempt of the Treasury to lay arbitrary rulings for the computation of such values results in a complicated tax form However, so long as capital gains and losses are a part of the law, the Treasury must of necessity make such rulings It cannot simply leave the problem up to the individual and say, "Let your conscience be your guide"

Regulatory Taxes

A tax is sometimes used as a means of regulation for certain activities, either with no regard for revenue or with revenue as a second consideration This use of the taxing power is generally resorted to by the legislatures to accomplish regulation which lies beyond their powers as defined by the constitution It has long been recognized that Chief Justice Marshall was right when he said, "The power to tax is the power to destroy" If there is any business which the legislature wishes to wipe out, all that it has to do is to place a sufficiently high tax on it to render its operation extremely unprofitable Yet this is really an abuse of the taxing power In a dictatorship such a procedure is unnecessary, all that a dictator has to do is to publish an edict forbidding the practice of a certain kind of business, and the enforcement of this edict will accomplish the end In a democracy the use of the taxing power for regulatory purposes generally means that the legislature is exceeding the authority entrusted to it by the people If the people desire to give the legislature more power, this can be done by constitutional amendments Such an amendment may be drawn either so as to confer more general power on the legislature or to empower them to act with respect to the particular evil under consideration If the people do not wish to entrust the legislature with such power, the power should not be exercised by indirect means through this use of the taxing power

Unless there is external evidence, it is sometimes not easy to tell whether a particular tax is designed as a revenue producer or as a means of regulation Sometimes, either through ignorance or through unforeseen circumstances, a tax which was designed in all good faith as a means of raising revenue may prove to be a weapon that drives an industry out of business However, when specific regulations are laid down in the tax bill and the tax is then levied on those who do not conform, the intent of the legislature is clear In such cases, if the regulation is beyond that entrusted to the legislature or the constitution, the courts will not hesitate to throw the law out Such was the fate of one of the child labor laws passed by Congress It may be regretted that this and many other socially desirable laws may be likewise declared unconstitutional However, we cannot overlook the fact that if legislatures are given free rein with the taxing power, they may pass many socially undesirable laws as well as many socially desirable laws For example, a lobby of potato growers might be able to bring sufficient pressure to bear upon Congress to jam through a law putting a tax of $2 a pound upon spaghetti, or an antivaccination society might succeed in getting a state legislature to put a tax of $50 a gram on smallpox vaccine

Sometimes the regulatory tax is designed merely as a discouragement rather than as an outright prohibition of a particular practice For example, some people advocate high taxes on cigarettes and alcoholic liquors in the hope that this will decrease their consumption Such laws are usually upheld by the courts, since the revenue that is raised is clear and the regulatory aims are not stated in the act Nevertheless, the same objections apply to them as to taxes that are outright confiscatory or prohibitive.

CHAPTER XXVIII

Shifting and Incidence of Taxation

WE NOW come to one of the most difficult and involved subjects in the field of economics—the question of who actually bears the burden of the taxes that are levied by the various agencies of the government, and the question of who will actually bear any new taxes that are imposed

By the "shifting" of a tax we mean the passing of the burden of paying the tax from the person or firm on whom it was originally levied to someone else If, for example, a tax of 3 cents per unit is levied on the manufacture of a certain article, and if the manufacturer should then find it expedient (that is, that it gives greatest net return after the tax is paid) to raise the price of the article by 3 cents as he sells it to the wholesaler, we should then say that the manufacturer had shifted the tax to the wholesaler If the wholesaler in turn finds that he fares best by raising his selling price by 3 cents, he will shift the tax to the retailer The retailer might then raise his selling price by the same amount and so shift the tax to the consumer

Before going any further we must note that, in the actual world, the mere fact that the price of a product rises by the amount of the tax is not sufficient evidence that a tax has been shifted In the example above, if, at the same time the tax was imposed, the manufacturer's other costs had risen by 2 cents, then the raising of the price by 3 cents would shift only

1 cent, or one-third, of the total tax burden and the manufacturer would himself be paying two-thirds of the tax If the other costs had risen by 3 cents, an increase in price of only 3 cents would leave the manufacturer paying the entire tax and not shifting any of it

Contrariwise, the mere fact that the price of a product does not rise after a tax is imposed is insufficient evidence that the tax has not been shifted The manufacturer may find that he is able to force the producers of his raw materials to accept lower prices, or that he is able to force his workmen to accept lower wages, as a result of the tax Taxes may be shifted backward as well as forward in the production process Note, however, that before we say that the tax has been shifted backward in any case, it must be shown that the tax was the occasion for the decline in raw material prices or wages If such declines would have occurred without the tax (and no decline in selling price would have taken place), then the manufacturer is himself paying the tax out of what would otherwise have been increased profits

By the "incidence" of a tax we mean the place where the tax burden actually falls The incidence of a tax falls on the person who is unable to shift the burden to someone else, that is, the one out of whose pocket the tax finally comes It does not matter who turns the tax money over to the government If a tax is levied on a manufacturer, he will be the one to turn the money over to the government However, if through higher prices the tax has been shifted all along the line to the consumer, he is the one upon whom the incidence of the tax actually falls In some ways the manufacturer and the other dealers may be said to be acting as agents in collecting the tax for the government

So long as the government receives the money, it might, at first sight, appear to be a matter of indifference on whom the incidence of the tax falls Many taxes are indeed levied in this careless fashion with little heed as to what group of people is actually going to bear the tax Nevertheless, difficult as the problem of determining incidence may be, it cannot be ignored if we are concerned with equalizing the burden of taxation or apportioning it according to any of the theories (ability, benefit, and so forth) outlined in Chapter XXVII We may say, for instance "Here is an industry which can well afford to pay a tax" However, unless we are extremely careful of the manner in which the tax is levied, we may find that the tax is finally paid not by the industry on which it was levied but by a group of people who were already overtaxed

Even from the point of view of raising revenue, however, the incidence of a proposed tax must be taken into consideration If the burden of paying a new tax falls on a group of people who are already buying other taxed articles, the purchase of which they now reduce, then the loss of taxes on these goods will have to be offset against the receipts from the new tax Under circumstances which are not at all improbable, the imposing of an unwise new tax may even decrease the total revenue which accrues to the state Let us suppose, for example, that there is already a tax on women's silk stockings but that this tax is actually being borne by the manufacturer and not passed on to the consumer. Now let us suppose further that a new and extremely heavy tax is placed on lipsticks and that this tax is shifted to the consumers (by the consumers I mean the women who buy the lipsticks—not the men who absorb them incidentally) It is entirely possible that many women might then be willing to go bare-legged rather than refrain from painting their lips The loss in revenue from the tax on silk stockings, which are no longer sold, might then be greater than the returns from the new tax on lipsticks, and the total revenue to the state would have declined because of the imposition of the new tax

Factors Affecting the Incidence of Taxation

We shall now attempt to analyze the conditions which either force the persons or firms on which a tax is levied to bear the tax themselves, or which enable them to shift the incidence of the tax to others Except for a few rare individuals, anyone on whom a tax is levied will cheerfully attempt to pass the tax on to someone else if he is able to do so, rather than pay the tax himself We must look for the conditions under which people are able to shift all or part of a tax to others We may assume, with a fair degree of accuracy, that a tax which is capable of being shifted will be shifted

Let us consider the question of incidence first in connection with what we may call business taxes (taxes which are levied on the manufacture or sale of a product, on the use of capital goods or productive factors, or on the income of business firms) There are several factors which we shall have to consider in connection with these taxes (1) the type of tax which is imposed, (2) the nature of the total demand for the product, (3) the degree of competition in the market where the industry sells its products (monopoly, oligopoly, monopolistic competition, pure competition), (4) the technical cost conditions in the industry (shape of the technical cost curves), (5) the nature of the total supply of the means of production to the industry, (6) the degree of competition in the market where the industry buys its means of production (monopsony, oligopsony, pure competition among buyers) Unfortunately we shall not be able simply to take each of these elements and generalize upon it, but we must take them in various combinations according to the special problems which are presented by them

Taxes as Business Costs

Any tax which is imposed on a business must be considered first as an addition to cost The question then arises as to whether it is advisable for the firm to alter its scale of output as a result of this change If output is decreased by a monopoly, the smaller output can be sold at a higher price The difference between the higher price and the former price will then represent the amount of tax per unit of product which is being shifted to the buyer This difference, multiplied by the total number of units sold, is the amount of the total tax which is shifted to the buyers (As we shall see later, the price rise may exceed the tax under certain conditions) We must note carefully, however, the different results which are occasioned by different types of taxes A tax which is in the nature of a lump sum (that is, which does not vary in amount with output or sales) will be in the nature of an addition to fixed cost Such a tax will not change either marginal cost or average variable cost and hence will occasion no change in output by the monopoly On the other hand, a tax of a certain sum per unit of output, or a tax expressed as a per cent of gross sales, will be an addition to average variable cost and to marginal cost and will thus occasion a change in output to the point where the new marginal cost (including tax) and marginal revenue are again equal

Tax as Fixed Cost

Under monopoly, any tax which is in the nature of a lump sum tax will be paid entirely by the monopolist and not passed on to the buyer A lump sum tax is really a fixed cost A fixed cost, it will be remembered, is one which remains constant as a total and does not vary with changes in output, regardless of the number of units produced Since marginal cost is defined as the additional cost necessary to produce one more unit of output, it obviously contains no element of fixed costs This is the case with any tax assessed as a fixed amount on a monopoly Such a tax makes no change in the marginal cost curve of the firm, and so the point of greatest monopoly profit is at exactly the same output as before. Monopoly profits will, of course, be decreased by the amount of the tax, but there will be no other point of output at which net monopoly profits will be any greater than at the old output and the old price. This statement is based on the assumption that the monopolist was already charging the full monopoly price for his product before the tax was imposed. If this is not the case, the imposition of a tax may cause him to re-examine his price policy with a view to charging the full monopoly price. In such an event some part, or all, of the tax may be passed on to the buyer. However, we have no assurance that the monopolist would not have sooner or later discovered the error in his pricing policy even without the imposition of the tax. Thus, under these circumstances, the tax is the immediate occasion rather than the ultimate cause of the higher price to the buyer.

A lump sum tax might be imposed in the nature of a license fee or franchise tax, a tax as a per cent of net income, or, in the short run, a tax stated as a per cent of the assessed value of capital or real estate. While we have said that a tax of this sort on a monopoly cannot be passed on to the buyer (if the monopolist has previously been charging the full monopoly price), there are some circumstances under which the tax may be evaded. If the monopoly is not dependent upon location, the firm may move out of the jurisdiction of the government which imposes the tax. The burden of heavy taxes has been the cause of movement from one city or state to another by many manufacturing firms which were highly competitive, as well as by firms which possessed a greater degree of monopoly power.

If a tax burden absorbs all or a great part of the net income of a monopoly firm which is unable to move, other expedients may be adopted. Maintenance expenditures may be discontinued or greatly reduced in an effort to recover some part of the money capital invested. To the extent that the capital goods of the firm are not specialized to the particular business, they may be sold or invested in other lines not so heavily burdened by taxes It is a nice question to be determined how much a monopoly can be taxed without being taxed out of existence[1]

Tax as Constant Variable Cost

A variable cost is a cost which changes *as a total* with changes in output When we speak of a tax as a constant variable cost, we mean one which is constant *per unit of output* but which increases *as a total* when output increases, because the tax must be paid on more units of output

When a tax is levied on a per unit of output basis on a monopoly, the tax becomes an addition to marginal cost at each possible output The point of intersection of the marginal cost and marginal revenue curves is thus shifted to the left That is, the point of greatest monopoly profits after the tax is included as a cost will be at a lower output than before the tax was imposed The assumption is again made that the monopolist has been charging the full monopoly price before the tax was imposed, and that the conditions of production other than the tax and the conditions of demand are unchanged Part of a tax per unit of output on a monopoly will be passed on to the buyer There are several circumstances which will govern the proportion of the tax which is so shifted

(1) The closer to horizontal the slope of the demand curve, the greater the proportion of the tax that will be paid by the seller, and, conversely, the steeper the slope of the demand curve, the greater the proportion of the tax that will be paid by the buyer

(2) (a) If the point of greatest monopoly profit was on the declining part of the marginal cost curve before the tax was

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[1] If the invested capital is mostly borrowed, the firm may, of course, be taxed into bankruptcy long before the operating unit is taxed out of existence However, so long as any positive rate of return is being earned on invested capital, it is most likely that the firm will continue to be operated either by the original owners or by the creditors rather than an attempt made to withdraw capital in the manner outlined All monopoly profits might be absorbed by the discussed type of taxation without

imposed, the greater the slope of the marginal cost curve, the greater the proportion of the tax that will be shifted to the buyer, and, conversely, the less the slope of the marginal cost curve, the greater the proportion of the tax that will be borne by the seller (b) If the point of greatest monopoly profit was on the rising part of the marginal cost curve before the tax was imposed, the greater the slope of the marginal cost curve, the greater the proportion of the tax that will be borne by the seller, and conversely, the less the slope of the marginal cost curve, the greater the proportion of the tax that will be shifted to the buyer (c) In general, a greater proportion of the tax will be shifted if the point of greatest monopoly profits was on a declining phase of the marginal cost curve than if the point was on a rising phase of the marginal cost curve before the tax was imposed

Diagram 1 illustrates the effect of the imposition of a tax per unit of output on a monopoly under one set of demand and cost conditions Note the following results

	Before Tax Was Imposed	*After Tax of $5 00 Per Unit of Output Was Imposed*		
Selling Price	$ 22 00	$ 25 00	Increase in price to buyers	$ 3 00
Average Total Unit Cost	12 50	19 00		
Profit per Unit	9 50	6 00	Decrease in seller s profit per unit	$ 3 50
Total Revenue	528 00	500 00		
Total Cost	300 00	380 00	Decline in seller s profits	
Net Profit	228 00	120 00		$108 00

Consumers lose 4 units of goods formerly worth $22 00 each—total $88 00, but spend $28 00 less, leaving a net loss to consumers of [a]	60 00
Total loss to consumers and seller	$168 00
Revenue to government $5 00 on 20 units, total tax revenue	100 00
Apparent net loss to the community	$ 68 00

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[a] The $28 00 is now spent for other goods, but these other goods presumably yield less satisfaction or the consumers would have bought them before they were induced to do so by the price change occasioned by the tax Consequently, the total loss to the consumers may exceed the money loss of $60 00

A TAX AS A CONSTANT

VARIABLE COST

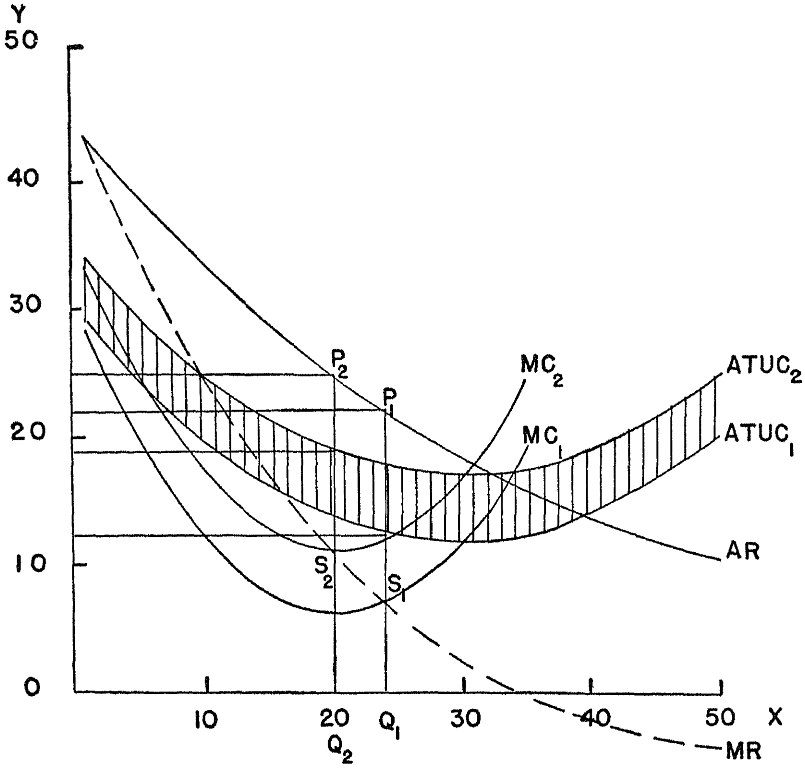

DIAGRAM 1

AR is average revenue (that is, demand curve)
MR is marginal revenue
$ATUC_1$ is average total unit cost before the tax
$ATUC_2$ is average total unit cost including the tax
MC_1 is marginal cost before the tax
MC_2 is marginal cost including the tax
S_1 is the point of intersection of marginal cost and marginal revenue before the tax
S_2 is the point of intersection of marginal cost and marginal revenue after the tax
P_1Q_1 is the price before the tax
P_2Q_2 is the price after the tax
OQ_1 is the monopoly output before the tax
OQ_2 is the monopoly output after the tax

It will be noted that there is sometimes a sort of "dry loss" possible in taxation—that is, a loss in value to the seller and consumers combined which is greater than the revenue the government receives, leaving a net loss To overcome this apparent net loss in the above case, the government must take the $100 00 tax revenue and, using the resources made idle by the contracted output, provide services worth $168 00 to the public [2]

If the demand curve for a monopoly product is a *straight line,* we may make the following generalizations about a tax per unit of output (tax as a constant variable cost) [3]

The slope of the marginal revenue curve is always one-half of the slope of the average revenue (or demand) curve

The point at which the marginal revenue curve is cut by the new marginal cost curve (including tax) will be higher than the former point of intersection of marginal cost and marginal revenue by a distance which represents the difference between the old marginal cost at the old output and the new marginal cost (including tax) at the new output [4]

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[2] It is only fair to note that the loss in excess of the amount of the tax was occasioned by the fact that the tax was placed on a firm operating under conditions of decreasing costs If the government should spend the tax proceeds of $100 00 on the purchase of goods from some other firm or industry operating under decreasing costs, the lower prices to other buyers of this second good (caused by increased output at lower cost) might offset the "dry loss" We neglected, of course, the cost to the government of collecting the tax

[3] See Robinson, Joan, *Economics of Imperfect Competition,* Ch 5, Macmillan & Co , Ltd , London, 1934, for a fuller explanation of this subject

[4] These rather lengthy statements are necessary to avoid ambiguity I had experienced some difficulty in reading Joan Robinson, but it was Professor Machlup who pointed out to me that this is an example in the use of the phrase "change in cost' exactly analogous to the ambiguities we have suffered from the use of the terms change in supply" and "change in demand' both as point changes and as schedule changes Whenever Mrs Robinson uses the expression "change in marginal cost,' one must be careful to note from the context whether she means (1) A change from one point to another on the same curve, (2) a change from one

Therefore, with a straight line demand curve, the rise in price due to the tax is always equal to one-half the difference between the old marginal cost at the old output and the new marginal cost (including tax) at the new output This may be seen from Diagram 2

TAX AS CONSTANT VARIABLE COST
STRAIGHT LINE DEMAND CURVE

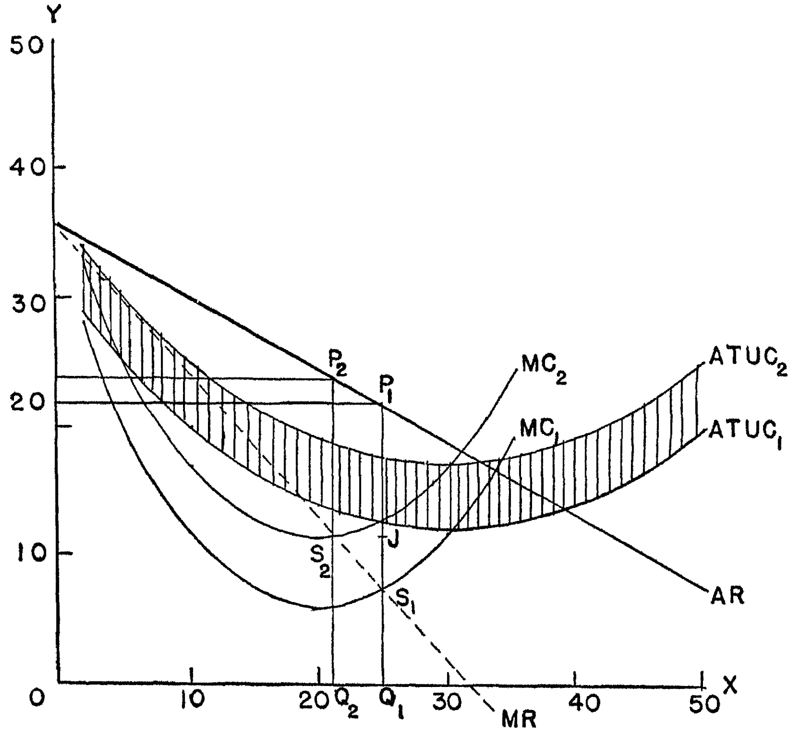

DIAGRAM 2

Point S_1 is marginal cost at old output
Point S_2 is marginal cost including tax at new output
On the line P_1Q_1 point J is measured equal in height to point S_2
The distance JS_1 then represents the change between marginal costs at the old and the new output
P_2 is above P_1 by one-half the distance JS_1

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cost curve to another, or (3) a change from one point on one cost curve to another point on another curve Until our economic vocabulary is enriched by words which sharply distinguish these meanings, we shall have to suffer from circumlocutions for the sake of clarity

If marginal costs are constant, the increase in marginal cost will be equal to the tax and the increase in price will be equal to one-half the tax

If marginal costs are rising at the former equilibrium output, the difference between the marginal cost at the new equilibrium point on the new marginal cost curve (including tax), and the old marginal cost at the old output, will be less than the amount of the tax Therefore, the increase in price will be less than one-half the tax

If marginal costs are falling at the former equilibrium point, the new marginal cost at the new output will be greater than the old marginal cost at the old output by an amount which is greater than the tax, and the increase in price will be more than half the tax[5]

The final effect of a tax as a constant variable cost is not always the immediate effect in actual practice For example, a new tax, or a tax increase, of 1 cent per gallon is placed upon gasoline The first reaction of the sellers may be to increase their price to consumers by 1 cent an order to impress them with the idea that the tax has been imposed and that the rise is due to the tax alone Later on, the price (including tax) will be either raised or lowered according to the principles we have outlined Likewise, when such a tax is repealed, the first effect is to drop the price by the full amount of the tax reduction to make the customer believe that he has been given the full

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[5] In this case, if the slope of the old marginal cost curve is equal to the slope of the average revenue curve, the price will increase by the full amount of the tax If the slope of the marginal cost curve is greater than the slope of the average revenue curve, the price will increase by more than the tax If the demand curve is concave, the effect upon price by the tax will be greater the greater the concavity of the demand curve

Most of the ideas in this section on taxes on monopoly as constant variable costs are the result of Mrs Robinson's efforts to examine further the proposals of Marshall and Pigou to tax increasing cost industries and to give a bounty to decreasing cost industries Whatever improvement in statement I have made in Mrs Robinson's propositions is due to the help of Professor Machlup benefit of the reduction Later the price will return to the most profitable point (not including this tax or part of tax)

Tax as a Changing Variable Cost

By a changing variable cost we mean a cost which changes both *per unit of output* and *as a total* when output is changed

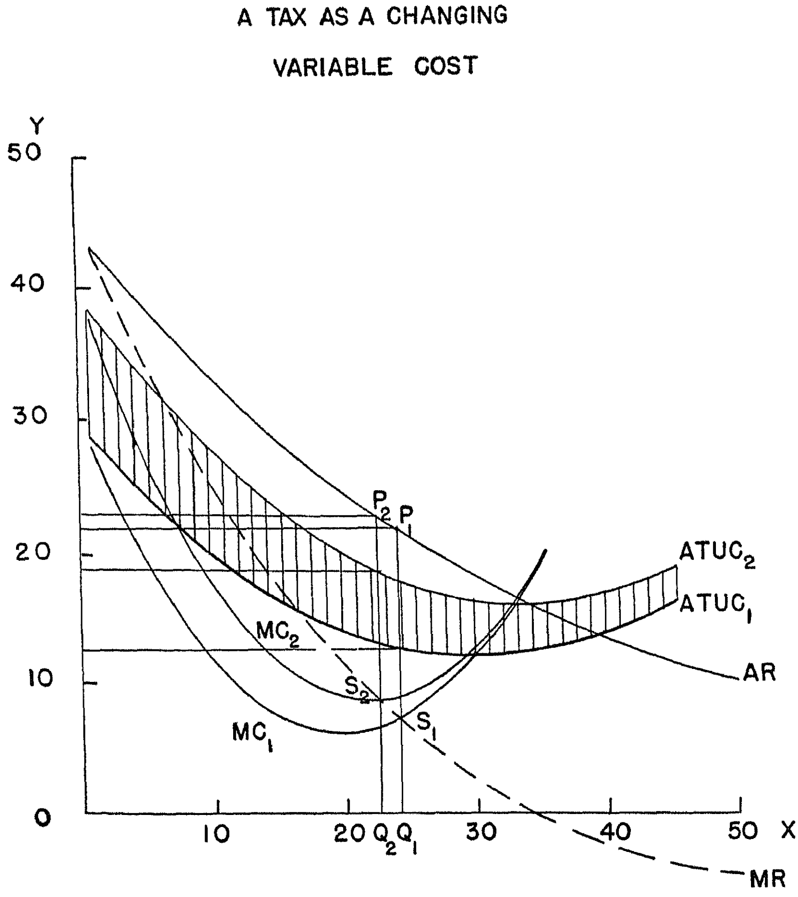

DIAGRAM 3

A good example of such a tax is a Gross Sales Tax Such a tax is simply a tax expressed as a per cent of total revenue The marginal cost of such a tax will be the same per cent of marginal revenue as the tax is of total revenue It follows from this that a tax expressed as a per cent of total revenue will occasion much less reduction of output and much less increase in price than a tax of a similar amount levied as a tax per unit of output The demand curve and the cost curves, before the tax was imposed, in Diagram 3 are exactly the same as in Diagram 1 In Diagram 1 the tax was assumed to be $5 00 per unit This is slightly less than 23 per cent of $22 00 which is the original monopoly price in both cases In Diagram 3 a tax of 23 per cent of total revenue was imposed Notice that the consequent increase in price is only about $1 00 as contrasted with the $3 00 increase in price when the tax was imposed as a tax per unit of output

Tax as Per cent of Net Income

Note here the difference between the incidence of a tax as a per cent of net income and a tax as a per cent of (gross) revenue of a monopoly While a tax as a per cent of total revenue will partly be passed on to the buyer, a tax as a per cent of net income will be paid entirely by the monopolist That point at which total net income was maximized before the tax was imposed will still be the point of greatest total net income after the tax, expressed as a per cent of net income, is deducted. In strict theory, such a tax does not enter into the cost calculations of the monopolist at all It is simply a deduction to be made after his greatest net income is determined For this reason, a tax as a per cent of net income is often proposed when it is desirable that the incidence of a tax fall on the firm upon which it is levied

In actual practice, however, the matter is not quite so simple Although the tax cannot be shifted, it is one of the types most subject to evasion as there is no commonly accepted definition of what constitutes net income It is true, of course, that net income is generally defined as gross receipts minus the costs of production This, however, does not help us much, for it only gives rise to the question of what are the legitimate costs of production which may be deducted in computing net income for tax purposes For instance, a man may own all, or the majority control of a certain company He then may decide to pay himself $50,000 or $100,000 a year, alleging that this sum represents his wages of management and should be allowed as a cost deduction in figuring net income for the firm Such a sum may, in many cases, be obviously much greater than his services are worth, but who is capable of saying with exactitude that the man's services are worth exactly so much and no more to the firm? Under such circumstances, the Treasury (or other tax collection agency) is forced to make arbitrary rulings and even then every individual firm's tax return may be subject to review by the courts Such a process is costly and uncertain both for the taxpayer and the government Moreover, the manager's salary is not the only element of cost which may be a subject of tax evasion or a matter of legitimate doubt For this reason, a tax as a per cent of gross sales may sometimes be preferred to a tax as a per cent of net income because, although some part of the sales tax may be shifted, it is much less subject to evasion than the tax on net business income The incentive to tax evasion is present, of course, in all taxes, the difference is one of degree

Taxes on Industries Operating Under Conditions of Monopolistic Competition

The probable incidence of taxes on industries operating under monopolistic competition is even less certain than their incidence on perfect monopolies Under the heading of perfect monopolies, we were free to assume that the demand curve of the firm would remain unchanged after the tax was imposed and to devote our entire attention to the effect of the tax upon marginal cost Under monopolistic competition, however, the demand curves as well as the cost curves of the individual firms may be altered by the tax, and we shall have to take this circumstance into account A tax that is applied generally to all or to a large part of articles consumers buy will have some effect on the demand curve for a monopoly product, due to changes in relative prices of other goods and to changes in income distribution occasioned by the tax However, since by definition there are no close substitutes for monopoly products, the results on the demand curve are largely indeterminate and we have neglected them On the other hand, firms operating under conditions of monopolistic competition are, by definition, selling products which are closely competing substitutes for each other Therefore, we shall try to consider the effects resulting from their competitors' reaction to the imposition of a tax on the demand curves of the individual firms

Tax as Fixed Cost

For a group of firms operating in an industry under conditions of monopolistic competition, the effect of a lump sum tax upon the *cost* of each individual firm will be exactly the same as the effect of the same type of tax under monopoly That is, the tax represents an increase in fixed costs but has no effect upon marginal cost, and hence there is no tendency *on the cost side* to reduce output of the individual firm in order to shift the tax to the buyer On the demand side, however, several circumstances may occur

(1) The burden of the tax may be such as to force some of the competing firms out of business In this case, the customers of the defunct firms will be distributed among the firms that remain in business, increasing the demand for their products, but we have no reason to presume that the increased demand will be distributed equally among the re-

maining firms Some firms may obtain the lion's share of the old firms' customers, some may obtain very few, and some may obtain none at all In this event, the firms receiving the greatest increase in demand may find it most expedient to raise their prices sufficiently to shift the entire burden of the tax on to the buyers (It may even be that their net profits are greater after the tax is imposed than before) Some firms will be able to shift a part of the tax to the buyers, while others may have to absorb the entire cost themselves

Under certain circumstances, the prices charged by all firms that remain in business may be even less than before the tax was imposed (a) If, before the tax was imposed, there were a large number of firms each operating at less than optimum capacity, and (b) if, after some firms are forced out of business, the demand curves of those which remain become more elastic (since the new customers they acquire may be somewhat indifferent as to their special services) For example, suppose that there is an excessive number of gasoline stations in a large city A license fee of $500 per year per station might cut the number of stations in half, and the remaining stations might then find that by cutting their price and operating at capacity, their net profits, even after paying the tax, are greater than before the tax was imposed This situation will apply only in certain cases of diminution from a great number of firms to a number which is still fairly large It will not be applicable in the case of a small oligopoly

(2) It may be that no firms are forced out of business by the fixed cost tax In this event, it is still remotely possible that a considerable proportion of the tax may be shifted to the buyers This is most likely to apply in the case of an oligopoly (a small number of firms which do take account of rival prices in determining their own price policy) When a tax is imposed, if all firms raise their prices simultaneously

in an effort to shift the tax to the buyer, any single firm will lose much less business than if it attempted to raise its price alone Nevertheless, even under these circumstances, we cannot assume that the full burden of the tax will be shifted to the buyer, as all firms raise their prices simultaneously, some of the customers of each firm may cease to buy the product entirely The extent to which the tax can be shifted is thus dependent upon the elasticity of demand for the product in general, rather than on the elasticity of demand for the product as sold by the individual firm It may be argued, however, that the possibility of shifting the tax to the buyer is not very great, because if conditions of total demand are such that all firms can raise their prices together (without encountering a serious decline in the amount sold), it seems reasonable to suppose that they would have done this without the impetus of a tax

Tax as a Constant Variable Cost

A tax per unit of output on the firms operating in an industry under conditions of monopolistic competition constitutes an addition to marginal cost Here again, however, we must consider the most likely changes in demand as well as the change in cost, so that the analysis that we made for this type of tax on perfect monopoly is no longer applicable All we can say definitely is that because the individual firm's demand curves will be shifted somewhat (as all firms attempt to raise prices to shift the tax), the proportion of the tax shifted will tend to be somewhat greater than it would be in the case of a perfect monopoly We cannot assume, however, that each firm's demand curve will be shifted by the amount of the tax, particularly if the competing products sold at different prices before the tax was imposed Suppose, for example, that a new tax of $100 each is imposed on the manufacture of automobiles If, then, the tax were simply passed on to the buyer, it would mean that car *A,* which formerly sold for $900, would now sell for $1,000, and car *B,* which used to sell for $1,000, now sells for $1,100 But a great many of the former buyers of car *B* may feel that $1,000 is all that they care to pay for a car In that case they will now buy car *A* at $1,000 (including tax) rather than car *B* at $1,100 The manufacturer of car *B* may then find that, in order to retain some of these customers, he will have to price the car at $1,050 or $1,025, thus paying one-half or three-quarters of the tax himself

A tax per unit of output may be the means of forcing some of the competing firms out of business, which we found to be the case under a lump sum tax Similarly, depending upon the circumstances, the prices charged by the various firms may be either higher or lower than before the tax was imposed

Tax as a Changing Variable Cost

The effects upon the cost curves of the various firms will be the same as those indicated for the gross sales tax under perfect monopoly If the tax is applied to one industry alone, there will be less tendency to shift it than there was in the case of the tax per unit of output However, if the tax is applied to all goods and services, the tendency to shift it is much greater than if it were applied to one industry alone, since all the alternative uses for the buyers' money are likewise subject to the tax Nevertheless, it must be obvious that if a 3 per cent sales tax is imposed, buyers with total incomes unchanged cannot pay 3 per cent more for all goods which they buy and continue to purchase the same quantity. Furthermore, people obviously will not purchase 3 per cent less of all kinds of goods but will rather give up first those kinds of goods whose denial represent least sacrifice to them To the extent that popular tastes (or needs) are similar, this will tend to concentrate the decrease in demand in particular lines of goods[6] In these lines, even if the sellers pay the tax themselves, it is highly improbable that they could recover the full volume of their former sales since it is not merely the tax on these particular goods, but the necessity of paying 3 per cent more for nearly all other goods, which is causing the curtailed purchases The tendency of a general sales tax is thus to increase the price of some goods and to decrease the price of others, but it is more likely that the tax will be shifted in the case of necessities and goods of inelastic demand than in the case of goods for which the demand is elastic

Tax as a Per Cent of Net Income

This tax will not force any firms out of business in any single industry to which it is applied Those firms which are just breaking even (making no net income) will not have to pay any tax Other firms will have to pay only a certain per cent of their net income so that there is no compelling motive for them to cease business It is extremely unlikely that this type of tax will be shifted, should those firms making the greatest profits (and therefore paying the greatest taxes) attempt to increase their prices, it would be to the advantage of other firms to keep their prices low and to take away business from the firms which raise prices The increased tax that the low-priced firms would have to pay would be only a fraction of their increased net income It appears, if the tax were 10 per cent, that anyone would gladly pay $1,000 in order to secure an additional $10,000 net income, leaving a clear gain of $9,000 even after the tax was paid

We have already noted that, due to the difficulty or impossibility of shifting this type of tax, it is more subject to evasion than other taxes and is subject to high costs of administration The tax is also apt to be an uncertain producer of revenue for the government since business profits are subject to wide fluctuations in the business cycle

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[6] If the tax is imposed in a period of unemployment and the proceeds are used for relief, there will also be an increase in demand for other types of goods, perhaps causing their prices to rise by more than the tax

Taxes on Industries Operating Under Pure Competition

Since decreasing costs are not, in general, compatible with pure competition, we can ignore this situation and concentrate our attention upon the situations arising when taxes are placed on industries operating under conditions of constant or increasing costs Furthermore, we do not need to look for situations in which some sellers will shift a tax and others will not, since it is one of the conditions of pure competition that all sellers will sell at the same price

Under conditions of constant cost Price is equal to both marginal and minimum average total unit cost for all firms in the industry and there are no pure profits In the long-run equilibrium, therefore, the full burden of any tax, regardless of the type, will be shifted In the short run, all firms may operate at a loss until some are forced to leave the industry The decreased output may then be sold at a price which covers all costs, including the tax The less the slope of the demand curve, the greater the number of firms that will be forced to close to restore an equilibrium price including the cost of the tax In some cases it may be possible to shift some of the tax burden back to labor or the suppliers of raw materials, which would occasion a correspondingly smaller decrease in the number of firms and a smaller increase in the price of the product Nevertheless, we can say definitely that under pure and perfect competition and under conditions of constant costs, all taxes will be shifted eventually

Under conditions of increasing cost Price, before the tax is imposed, is equal to marginal cost of all firms and to minimum average cost of the highest priced firms remaining in business under equilibrium conditions The incidence of taxation will be different under different types of taxes

Any tax upon the use of scarce factors of production (such as land) will be absorbed by the owner of the factor and will not be shifted This is true, however, only when the tax is imposed on the economic rent of the factor, regardless of the use to which it is put For example, if a tax of 20 per cent of the economic rent is placed on land used to grow wheat, but no tax is placed on land used for alfalfa, then the price of wheat will have to be sufficiently high so that the returns from growing wheat after the tax is paid are equal to the returns from growing tax-free alfalfa On the other hand, if a tax of 20 per cent of the economic rent is placed on all land, regardless of the use to which it is put, then the relative attractiveness of different uses for the land will not be changed, prices of the various products will remain unaltered and the landlord will have to assume the full burden of the tax

It is interesting to note that a tax upon economic rent is absorbed once and for all time by the person who owns the land (or other resource of production) at the time when the tax is imposed For example, suppose there is a piece of land which yields a net income of $1,000 a year If the going rate of interest is 4 per cent, the land will be worth $25,000 ($1,000 is 4 per cent of $25,000) Now, suppose a tax of 20 per cent is placed on the rental value The net return after the tax is paid will be $800. Anyone who now wishes to buy the land and to earn 4 per cent on his investment will pay only $20,000 ($800 is 4 per cent of $20,000) The original owner thus takes an immediate loss in asset value of $5,000 when the tax is imposed Subsequent owners will bear no part of the tax burden unless and until the tax rate is increased

A tax per unit of output (tax as constant variable cost) on an industry operating under pure competition and increasing cost will be partially shifted to the buyers of the product. The tax will constitute an addition to the marginal and to the average total unit cost curves of all firms Those firms which were previously so situated that the price was just equal to minimum average total unit cost will be forced out of business, while others will contract output to the point where the new price is just equal to marginal cost, including the tax As output is contracted, however, a lower point will be reached on the old marginal cost curve Therefore, the price of the product need not rise by the full amount of the tax in order to equate the new marginal cost, including tax, with the new price Since we have assumed that under pure competition there are no pure profits, any part of the tax that is not shifted to the buyers will be at the expense of economic rent of the scarce factors of production being used in the industry

A tax as a per cent of gross sales (tax as changing variable cost) will be shifted in a manner quite similar to the tax per unit of output, as outlined in the preceding paragraph A lump sum tax, or license fee, will likewise be at least partially shifted To the extent that marginal firms are forced out of business and to the extent that other firms contract output, the decreased output can be sold at a higher price including at least a part of the tax

Taxes on Personal Property and Personal Income

So far we have been discussing taxes on business enterprises When we come to the subject of personal taxes the problem is much simpler, as personal property is owned by the individual and is not being produced for sale Consequently, there is almost no possibility of shifting this tax, or that on personal income

While there is no possibility of shifting the tax on personal property that is already in the possession of the individual, one form of a shift may take place in connection with property not yet acquired If the property tax is placed on only a few articles and not on all personal property, a number of people may refrain from buying these particular articles This decrease in demand may cause the price to be lowered somewhat so that subsequent purchasers do not feel the burden of the tax so heavily For example, if I have to pay a tax of $10 a year on a piano that sells for $800, I am as well off as if I had to pay $1,000 for a piano when no tax was being charged (assumed rate of interest 5 per cent) This is an example of the backward shifting of a tax The price might even fall below $800, if people are afraid of further higher taxes on this article It is not likely, however, that the entire burden of a personal property tax will be shifted in this way, since in that event people would buy as much of the article as they did before the tax was imposed and the price would not fall

Backward Shifting of Taxes

So far we have been giving our attention mainly to the shifting of taxes forward to the buyer of the product The process of tax shifting often takes place by the shifting of the burden of the tax backward to the sellers of raw materials or the resources of production Whether a tax is shifted backward or not depends, in part, upon the elasticity of supply of the resources of production The less elastic the supply, the greater will be the possibility of backward shifting of a tax In other words, as business firms offer lower prices for resources (their means of passing the tax backward), they will be able to obtain very nearly the same amount of resources if the supply is inelastic Whereas, if the supply of resources of any kind is very elastic, any attempt to beat down the price will result in greatly curtailed offerings so that the firms will not be able to obtain the desired quantity

The same type of tax may happen to be shifted forward in one industry and backward in another We have a good example of this in the case of the processing taxes In 1933 a tax was placed on the first domestic processing of both cotton and hogs in order to defray the expenses of the Agricultural Adjustment Program The Treasury Department is apparently of the opinion that the tax on cotton was shifted forward, while the tax on hogs was shifted backward to the farmer There are several reasons for this difference The value of raw cotton constitutes only a very small fraction of the price of finished cotton goods, so that the shifting of the tax forward resulted in only a negligible rise in the price of the finished products to be borne either by dealers or by the consumer On the other hand, the price of live hogs constitutes an important part of the price of pork products and the demand for pork is fairly elastic, so that it apparently was not expedient to shift the tax to the consumer The short-run supply of hogs is also more inelastic than that of cotton Cotton which is unsold stands a chance of appreciating in value during the season by an amount which may cover the carrying charges Hogs, on the other hand, must be fed at considerable cost during the time they are withheld from market and, as the hogs become too heavy, their price per pound is much below that of lighter hogs Consequently, the farmer could be fairly easily forced to stand the cost of the processing tax if he wished to dispose of his hogs

Other conditions being equal, a tax upon the use of a single factor of production is apt to be more readily shifted backward than any of the other types of taxes Consider, for example, the payroll tax for Social Security funds. This tax does not penalize the employer upon his output but upon the amount and value of labor that he uses Consequently, if he can produce the same output with less labor, he has an added incentive to do so in the reduced payroll tax that he will have to pay Processes which use more capital and less labor have now become more attractive than they were before the tax was imposed As workers become unemployed, or are threatened with unemployment, through this process they may be willing to work for lower wages It may eventually prove to be the case that the workers will bear the full burden of the payroll tax in the form of lower wages

Conclusions

We have made some attempts to analyze the principles which govern the shifting of taxation Perhaps we have only discovered more forcibly how difficult it is to determine where the incidence of a tax finally falls Even this may prove helpful, however, if it tends to make us more cautious in proposing and enacting new taxes

CHAPTER XXIX

Credit Creation and Banking Mechanism

IN THE previous discussions of value and price and distribution we have practically ignored any independent influence of money upon our analysis For us, so far, money has been merely a convenient common denominator in which to express the prices and costs of goods and services It also served as a medium of exchange and a means of making payments which avoided the difficulties of barter It was more simple for us to do this in order to concentrate our attention on the factors in price determination which are peculiar to individual commodities

It is now necessary to remove this assumption We may define money as *anything which is commonly accepted as a medium of exchange, measure of value, or standard of deferred payments* It also sometimes serves as a store of value We must recognize, however, that money can be created or destroyed and that the efficiency of money in making payments can be increased or decreased The next chapter will deal with the results of such changes in the effective quantity of money The present chapter deals with the means by which the quantity of money may be increased or decreased

The most obvious way in which money may be created is for the government to print additional paper money to pay for its current expenses instead of paying for them by taxation or by borrowing Nearly always in the past this process, once begun, has led to the printing of excessive amounts of paper money with disastrous results This is the definition of "inflation" which registers in the mind of the man in the street Most governments, consequently, are very timid about using this particular way to increase the quantity of money If they do use it, they try to cover up their tracks by exchange control and other means such as are in use in Hitlerian Germany, so that the people will not realize the extent to which the currency has been depreciated

Another way in which money used to be created far more commonly than it is now is by the unrestricted issue of bank notes by private banks A bank note is a piece of paper bearing the words *The ——— Bank promises to pay the Bearer* $5 *in lawful money on demand* These notes have generally been printed to resemble the paper money of the national government as closely as possible In the early part of our history, often called the period of wildcat banking, these notes were issued by many banks in amounts far beyond their power to redeem them When too many of the notes were presented for collection to a bank at one time, the bank simply closed its doors and suspended payments, more often than not going bankrupt. In those days of slow communication, the worthless notes of a closed bank often continued to circulate long after the bank had failed As a result of these and other abuses, the privilege of note issue by individual banks has been abolished in most countries Note issue is usually confined to the Government Bank, if there is one, or to a bank which is semi-governmental and acting under close government supervision,

Certain forms of government borrowing also create money, but we will leave this complicated subject for later consideration

The most important source of money in the United States is the money created by the lending operations of commercial banks. In order to understand this better, we will review briefly some of the features of the banking mechanism

At the very outset we must eliminate many popular and erroneous notions concerning banking It is often said that "a bank is an organization which lends money" This is a very dangerous half-truth, particularly when coupled with the other popular notion that the government is the only organization that issues money It is true that some few loans are made in the form of government money, but the bulk of business of the modern commercial bank is in loaning *not* government money but *bank money* This bank money may be in the form of the bank's own notes but is usually in the form of a deposit credit subject to check Both of these are the promises of the bank to pay government money on demand So long as people have confidence in the ability of the bank to keep its promise, checks will be accepted instead of government money as a means of making payments Thus, the bank's ability to lend is confined not to the stock of government money which it has on hand, but rather to its ability to *create claims against itself* in the form of deposit accounts without having too many of these claims presented for redemption in government money at any one time[1]

Another popular delusion that we must guard against is the idea that a bank deposit is "money that is put in a bank" This is not true A bank deposit is a *claim against a bank*, that is, the *right* to demand money from the bank either immediately (as in the case of a checking account) or after a notice of a specified number of days (in the case of a savings account) It is true that you may have this claim because you have made a cash deposit in the past But when you make a cash deposit, the money is no longer yours, it now belongs to the bank What you have really done is to have bought a claim against the bank to pay you a similar sum (payable on demand in the case of a "checking account," or after a specified notice period in the case of a "savings" or "time" deposit) Legally, the banker could take the money you have paid in, change it for silver dollars, and throw them across the Potomac, as long as he was prepared to pay you a similar sum when requested *No specific cash* in the bank is represented by your deposit All that you have is a general claim against the assets of the bank

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[1] What we have called "bank money" is called "money substitutes" by some authors By whatever name they are called, however, bank notes and bank deposits constitute an addition to the effective quantity of money Arthur D Gayer and W W Rostow use the more apt term "check book money" (Public Affairs Pamphlets No 45, *How Money Works*, p 2)

In business transactions such deposit claims arise far more often in exchange not for actual money deposited but for the businessman's promise to pay In other words, the bank makes a loan to the businessman, but instead of lending him cash, it grants him the loan in the form of a deposit credit Instead of giving him cash, it gives him the right to draw checks on a deposit account which it *creates*[2] for him We can understand this better if we examine the organization of a bank and trace the effects of various transactions on the bank's balance sheet

The Bank Balance Sheet

The bank's balance sheet is a statement of its assets and liabilities An *asset* is either wealth owned by the bank or a legal claim which the bank has against someone else A *liability* is a claim which someone else has against the bank

Let us assume that the bank is started by the sale of $100,000 00 worth of its own stock The balance sheet will then appear as follows

FIDELITY BANK

BALANCE SHEET

Assets		*Liabilities*	
Cash on Hand	$100,000 00	Capital Stock	$100,000 00

Capital stock is here listed as a liability This is because the sum is owed by the bank[3] to its stockholders As we progress in our analysis, we will find the items "Surplus" and "Undivided Profits" in a similar category These items are sometimes called collectively the "Owner's Equity" in the bank The bank is considered to own nothing for itself Everything that a bank has is owed either to its creditors or to its stockholders

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[2] The power to create deposit credit is, however, not entirely a discretionary power of each individual bank It arises from the workings of a *banking system*

[3] An incorporated bank is legally an entity separate and distinct from its stockholders Hence it has financial responsibilities to its owners as well as to its creditors

Our bank must now acquire a place in which to do business, as well as a safe and other banking office equipment Let us suppose these cost $25,000 00 The balance sheet now reads:

FIDELITY BANK

BALANCE SHEET

Assets		*Liabilities*	
Cash on Hand	$ 75,000 00	Capital Stock	$100,000 00
Building and Equipment	25,000 00		
Total	$100,000 00	Total	$100,000 00

Assume now that our bank does its first item of business It loans $5,000 00 for two months at an annual rate of 6 per cent to the Brown Clothing Company, which wishes to buy a stock of goods The Brown Clothing Company gives the bank its promissory note, payable two months from now, for $5,000 00 The bank discount (interest charged in advance) on $5,000 00 for two months at a 6 per cent annual rate is $50 00, so the bank deducts this and gives the clothing company a deposit on its books of $4,950 00 and the balance sheet now reads

FIDELITY BANK

BALANCE SHEET

Assets		*Liabilities*	
Cash on Hand	$ 75,000 00	Capital Stock	$100,000 00
Building and Equipment	25,000 00	Deposits	4,950 00
Loans and Discounts	5,000 00	Undivided Profits	50 00
Total	$105,000 00	Total	$105,000 00

The bank's cash has been neither increased nor diminished by this transaction What has happened is that a *created* deposit has been given in exchange for Brown Clothing Company's promissory note If the Brown Company buys its stock from a manufacturer who is not a customer of this bank and gives a check in payment and the check is then presented to the bank to be cashed, the bank would immediately lose cash In that case, if the check were for $3,000 00, then $3,000 00 would be deducted from the item "Deposits" and $3,000 00 from the item "Cash on Hand" But if the clothing manufacturer also happened to be a customer of this bank and if, when he received the check, he deposited it to his own account, *no item in the balance sheet would be affected* The $3,000 00 would merely be deducted from Brown's deposit account and credited as a deposit to the clothing manufacturer Total deposits would remain the same, the bank merely owing $3,000 00 to the clothing manufacturer and the remaining $1,950 00 to the Brown Clothing Company "Cash on Hand" would not be affected at all

As a result of the transaction, we also notice another new item, "Undivided Profits $50 00" appears on the balance sheet, being the amount of discount on Brown Company's note This represents the difference between the $5,000 00 that the Brown Company has agreed to repay to the bank and the $4,950 00 deposit against which the Brown Company is allowed to draw checks Properly speaking, this $50 00 will not be a profit until two months have elapsed and the note falls due, since, if the bank needed cash and tried to sell Brown Company's note to someone else, it could not obtain the full $5,000 00 for it Another bank to whom the note might be sold would itself deduct a discount for the time remaining until the note fell due (In banking terms, this process of selling a discounted note is called *rediscounting*) We have said that the discount will not become a profit until the bank earns it by holding the note until its due deposit with other banks (perhaps to take advantage of the clearinghouse facilities of another bank in another city), and also the amount of checks drawn on other banks which have been received by our bank and which are in the process of collection

The new item which we find on the liability side is "Surplus " This surplus was previously undivided profits At regular intervals the bank's directors meet and decide what to do with the undivided profits Some are paid out as dividends and the remainder may be kept in the bank as a surplus to allow the bank to keep its investments intact "Undivided Profits" is not a cash item but a mere bookkeeping difference between the total of assets and the total of all other liabilities If the bank's present amount of cash is sufficient only to meet its reserve requirements, it would have to *sell* some of its other assets in order to pay a cash dividend

The Reserve Ratio

We may calculate the *reserve ratio* of the bank from the above balance sheet The reserve ratio is the ratio of cash on hand to deposits expressed as a percentage In this case $50,000 00 cash on hand is 10 per cent of the $500,000 00 deposits, so we say that the bank's reserve ratio as shown by this statement is 10 per cent Whether a minimum reserve ratio is prescribed by law or whether this is left up to the bank's own discretion (as is done in some countries), any bank which desires to avoid the embarrassment of having to suspend payments will keep a careful eye on its reserve ratio to try to prevent it from going below the necessary minimum There is no bank in such a position that it does not have to meet some requirements of its customers for at least a small amount of cash every day Some people need cash for making payments to those who do not care to accept checks Cash is used for making change in the retail stores Some firms pay their employees in cash A working reserve must be large enough to meet the peak demand for cash which is likely to occur on any one day

We may note the effects of certain types of transactions on the reserve ratio If, with the above statement showing the bank's position, the bank were to make an additional loan to someone of $25,000 00 in the form of a deposit credit, it would reduce this ratio to only a little over 9 52 per cent On the other hand, if the bank made a loan of the same amount in cash, it would reduce the reserve ratio to 5 per cent Or, if any depositor should ask to have a check cashed for $25,000 00, this withdrawal of cash would reduce the ratio to 5 per cent Two such withdrawals would exhaust the bank's cash completely and force it to refuse payment to the next person who came to the window

Adjustment of Bank Reserves

To avoid such eventualities as this, the bank tries to adjust its business so that the amount of cash flowing into the bank will equal the amount going out One way of attempting to do this is to set a maximum limit on the amount of the deposit which any one individual or firm may carry at the bank If the bank has a large number of small or medium sized deposits, the amount of cash flowing in from some depositors is likely to be roughly equal to the amount of cash withdrawals by others, and it will not be faced with the danger of large withdrawals by any individual customer Furthermore, most banks know from experience on what days, or at what seasons of the year, the demands on their cash will be the heaviest A bank must be prepared to meet these periods by attempting to conserve cash in a number of different ways The most common way for the banks to provide cash for these periodic needs, however, is to have on hand a fairly large amount of first-grade securities for which it is anticipated that there will always be a ready market The bank may then sell these bonds or use them as security on which to borrow the needed cash These bonds are therefore sometimes called the bank's "secondary reserve"

It should not be forgotten, however, that these bonds serve the purpose of a "secondary reserve" only when merely part of the banks in a country desire to sell securities and to obtain cash Under these circumstances, banks needing cash may sell securities without occasioning much, if any, decline in security prices But should all the banks of the country try to obtain cash in this same way (as they did in the panic of 1929–33), then the decline in the price of securities (due to the fact that all banks are selling and none buying) will mean that none of the banks will be able to obtain the value in cash at which these securities were listed in the balance sheet before the decline took place (In the panic of 1929–33, the value of securities held by some banks declined to one quarter of their former value because of the fall in stock market prices) In other words, this "secondary reserve" fails to act as a true reserve if all of the banks in the country attempt to convert securities into cash at the same time

Solvency and Liquidity

Attention should be given here to the difference between the terms *solvency* and *liquidity* A bank is solvent if the amount of its assets exceeds the amount of its liabilities to all claimants other than its shareholders But a bank is liquid only to the extent that it can turn its assets into cash to meet the demands of depositors and other creditors as rapidly as they are presented Many a bank which is solvent is not liquid Its assets may exceed its liabilities to creditors, but the assets may not be in such a form that they are readily convertible into cash When a bank's assets are largely in the form of real estate mortgages or in the form of claims which are not readily salable or which cannot be sold immediately without serious losses, the bank is said to possess *frozen assets*

Every bank operates upon the theory that not all of its depositors will withdraw their deposits in cash at the same time, although technically and legally all depositors have the right to do so Most of the time this presumption is justified As long as each depositor is satisfied that the bank is able to meet his claims on demand, he will make no attempt to withdraw his deposit except in such amounts and at such times as it is needed for ordinary business purposes But once a doubt creeps into the minds of the depositors about the bank's ability to pay, then they begin to test that ability by all attempting at once to demand their deposits in cash This collective action results in a "run" on the bank There is no bank in the country that is liquid enough to meet such a run unaided One of the reasons for which the Federal Reserve System was founded was to provide a "banker's bank" at which the member banks could borrow cash in emergencies Thus the Federal Reserve bank may turn a solvent member bank into a liquid bank either by buying assets from the member bank or by making loans upon the security of the member bank's assets, in case of a run

The Federal Reserve banks are themselves liquid enough so that they can turn any single solvent bank into a liquid bank, or even a large number of such banks may be made liquid at the same time But even the Federal Reserve banks may not be strong enough to withstand a concerted run on all of their member banks at the same time Furthermore, not all of the banks of the country are members of the Federal Reserve System, so that they cannot all take advantage of the System's facilities It was the threat of a general run on all the banks of the country that occasioned the declaration of the "bank holiday" by President Roosevelt in March 1933 We shall have more to say about the Federal Reserve System later

The Clearinghouse System

We must now turn our attention to one of the most important ways in which the banks conserve cash, by use of the clearinghouse system The bank clearing system operates on the principle of mutual cancellation of debts We can understand it best if we start out with a situation between two banks in the same town where no clearinghouse exists These two banks will each, in the course of the day's business, receive checks drawn on the other bank Of course each of these checks might be presented for redemption to the bank on which it was drawn This method would be awkward and cumbersome, and would involve a continual running back and forth with checks and cash between the two banks This is avoided in practice by saving the checks until the end of the business day, at which time each bank presents the checks to the other bank and only the *difference* between the two amounts is paid in cash by the bank against which the greatest amount of checks has been drawn If the two amounts should happen to be equal, no cash payment would be necessary by either bank, the two debts simply cancelling each other

The clearinghouse system is merely an elaboration of this principle Where there are a number of banks in the same town, even the cancellation method outlined above involves lost motion and unnecessary movements of cash For instance, Bank *A* might have a net balance in its favor due from Bank *B* and at the same time a balance against it is due to Bank *C* It would then be necessary to get the cash from Bank *B* and hand it over to Bank *C* But Bank *C* might then owe a balance to Bank *B*, so that the cash would travel back to Bank *B* from which it originated Such a movement of cash would be avoided under the clearinghouse system

The clearinghouse assumes the position of creditor to all debtor banks and debtor to all creditor banks Among clearinghouse members, a particular bank collects the checks which it has for collection not from the other banks but from the clearinghouse The bank also owes the clearinghouse, rather than the other banks, for the checks which have been drawn against it If a bank has more checks drawn in its favor on all other members than against it, it *collects* the *difference* from the clearinghouse On the other hand, if more checks are drawn against the bank than it holds against the other banks, it *pays* the *difference* to the clearinghouse Thus, the only occasion for a bank to pay out cash is when the *total* checks drawn against it and held by all other banks are greater than the *total* amount of the checks it holds against all other banks The only occasion for it to receive cash from clearings is when these totals are reversed In each case, only the *difference between the totals* is paid or received The economy in the use of cash is obvious

A bank which is not a member of a clearinghouse (usually an out-of-town bank) can make use of clearinghouse facilities by maintaining a deposit account with one of the members The member bank is usually called the "correspondent" bank of the out-of-town bank The member bank collects checks drawn on the other members for the out-of-town bank by presenting them to the clearinghouse, and it agrees to accept checks drawn on the out-of-town bank and held by other clearinghouse members

The existence of a clearinghouse system results in a smaller proportion of a bank's cash being paid out with a given volume of deposit credit than would be the case were there no clearinghouse All that the bank will have to pay out will be the net *difference* between the checks drawn in its favor and the checks drawn against it If the other banks are expanding deposits at exactly the same rate, this difference will be close to zero, and little or no cash will be lost Some of the effects of this extension of credit on our economic system will be discussed in the following chapter

The Federal Reserve System

In 1914, after a long history of bank failures and financial panics, the Federal Reserve System was established in the hope that it would remedy these conditions We all know that the Federal Reserve banks did not prevent the inflation of the 1920's nor the subsequent panic deflation of 1929–33 To what extent this was due to lack of powers on the part of the Federal Reserve banks and to what extent it was due to failure to exercise the powers they did have is still a debatable question[4]

Membership

There are twelve Federal Reserve banks, each located in what was considered the leading financial center of a Federal Reserve District at the time the system was established (There are four main acts under which the Federal Reserve System operates the Federal Reserve Act of 1913, the Emergency Banking Act, the Banking Act of 1933, and the Banking Act of 1935 Our discussion will have reference to the provisions of the latest of these acts which is in effect at present)

The Federal Reserve banks have often been called "bankers' banks" The member banks own the Federal Reserve bank of their district All member banks are required to buy stock in the Federal Reserve bank of their district in the amount of 6 per cent of the member bank's paid-up capital and surplus, except mutual savings banks, which must buy stock in the amount of 1 per cent their total liabilities The dividends on this stock are limited to 6 per cent, as the banks were not intended to operate for profit but rather to serve as a support for the banking system All national banks were required to become member banks or lose their charters, and other banks were encouraged to become members provided they met certain minimum requirements Another more important reason for the name "bankers' banks" is that the Federal Reserve banks make loans to member banks in much the same way that member banks and other commercial banks make loans to private individuals and firms, that is, in the form of "created deposits," or less often in Federal Reserve notes, Federal Reserve bank notes, or United States Government currency

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[4] Those who are interested in this and other earlier questions of the Federal Reserve System will find them well discussed in Harris, Seymour, *Twenty Years of Federal Reserve Policy*, Harvard University Press, Cambridge, 1933

Reserves of the System

The member banks do not keep their reserves in their own vaults The only item which is counted as legal reserve is the deposit of each member bank with the Federal Reserve bank of the district Member banks in New York and Chicago (called central reserve cities) must maintain such a Federal Reserve bank deposit in the amount of 13 per cent of their own demand deposits In other large cities (called reserve cities) the requirement is 10 per cent In smaller cities and rural towns the requirement is 7 per cent In addition, the banks may maintain a *non-legal* reserve, often called "till-money," of perhaps 5 per cent On time deposits all classes of banks must maintain a 3 per cent reserve

As a reserve against the deposits of member banks, a Federal Reserve bank must maintain 35 per cent in gold certificates or lawful money This is a good point at which to note the possibility of "pyramiding" a large quantity of "check-book money" upon a small reserve ratio On the reserves of the central reserve city banks, 35 per cent of 13 per cent is only 4 55 per cent For the reserve city banks, 35 per cent of 10 per cent is 3 5 per cent For the small town banks, 35 per cent of 7 per cent is only 2 45 per cent Thus the *minimum legal reserves* against checking deposits of the member banks are really 4 55, 3 5, and 2 45 per cent, or a weighted average of about 4 per cent Against the time deposits the ratio is 35 per cent of 3 per cent, or 1 05 per cent This legal minimum, however, is not the actual minimum The Board of Governors of the system may allow any Federal Reserve bank to drop its reserve ratio below the legal 35 per cent subject to a progressive penalty tax

On the other hand, the Board of Governors is empowered to double the reserve requirements of the member banks The Board actually did double the reserve requirements in May 1937 Many people said that this action saved us from a runaway price inflation and speculation in commodities Many others said that it forced an untimely business recession Perhaps we can find some basis for an attempted solution of the question in the next chapter

Control of the System

Although we have said that the twelve Federal Reserve banks are *owned* by the member banks of their districts, effective *control* of the system is in the hands of an independent governmental agency, the Board of Governors of the Federal Reserve System The Board is composed of seven members appointed by the President of the United States No members are from the Treasury The members serve terms of 14 years The President may discharge the chairman of the Board but he cannot discharge any other members

The twelve individual Federal Reserve banks are governed by a Board of directors selected in the following manner, three class A directors are bankers, three class B directors represent commerce, agriculture, and industry, three class C directors represent the public The six class A and B directors are elected by the member banks of the district The three class C directors are *appointed* by the Board of Governors of the Federal

Reserve System The board of directors elects a president *subject to the approval* of the Board of Governors It may thus be seen that the Board of Governors is in a position to exert considerable pressure within the Federal Reserve banks themselves in addition to the powers specifically granted by law to the Board of Governors

A list of the main specific powers of the Board of Governors follows

1 It may suspend the minimum legal reserve requirements for both Federal Reserve notes and deposits

2 It may double the original reserve requirements of member banks

3 If the pressure for loans is uneven as among the Federal Reserve banks in different districts, the Board may permit or *require* some of the district banks to rediscount commercial paper for the banks which need more lending power

4 It may examine the administrative action of any officer or director of a member bank, and after a hearing may discharge such officer for "violation of the law or unsound practices"

5 It exercises supervision over the rediscount rates charged by the twelve Federal Reserve banks

6 Through the Federal Open Market Committee (7 members from the Board of Governors, 5 representatives of Federal Reserve banks), the Board of Governors decides whether to buy or sell government bonds on the open market

We have discussed the organization and powers of the Federal Reserve System enough to see that the Board of Governors of the Federal Reserve System have practically unlimited power to create, or help create, check-book money (provided people want to borrow from member banks), and have fairly strong powers to decrease the amount of check-book money and currency in circulation This power is attested in a statement from the Board itself[5]

"Not only do the Reserve Banks not depend for their lending power on member banks, but they are themselves in a position to increase or decrease the lending power of these banks When the Reserve Banks buy United States Government securities or make advances, they put reserve funds at the disposal of member banks, and thereby increase their lending power And, contrariwise, when the Reserve Banks sell securities or reduce advances, they withdraw funds from member banks and thereby reduce their power to extend credit By these means the Federal Reserve banks, as creators and extinguishers of reserve funds, are in a position to exert an influence on the cost and volume of bank credit This is, in fact, their principal function as a monetary authority, and the policies pursued in performing this function are determined, not on the basis of the reserves available to the Reserve Banks, but with reference to the economic needs of the country"

The writer just quoted let the cat out of the bag when he mentioned the "economic needs of the country" The creation of check-book money is, after all, in the hands of the borrowers, and particularly of the borrowers for business purposes At any rate of interest below the rate which can be earned on invested capital, the "needs" of borrowers are insatiable In 1927, 1928, and 1929 when people erroneously expected profits to increase, even rates of interest of 14 per cent or higher did not discourage them from borrowing

On the other hand, at any rate of interest above the rate of prospective earnings, the "needs" of business to borrow are zero In the depths of the depression, borrowing declined although interest rates declined to fractions of 1 per cent for short-time loans and to about 4 per cent for longer-term loans

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[5] *Federal Reserve Bulletin*, February 1941, p 113

There is little doubt that the Federal Reserve System can restrict the creation of check-book money, once it is well into the inflationary stage The question is whether it can and will apply the brakes quickly enough and gently enough to avoid throwing the passengers out of the car On the other hand, there is still no proof that the system can "cushion" a major depression and still less that it can act as a "self-starter" to bring us out of a depression

CHAPTER XXX

Money

IN THE preceding chapter we discussed several ways in which money and particularly check-book money may be created and destroyed We shall now try to discover how the value of money is determined and how it is affected by these changes

The value of money is always expressed in terms of the goods and services it will buy Money has no *intrinsic value* in and of itself Even commodity moneys such as gold and silver coins have no intrinsic value except for people who actually make use of those metals in their work The market value of these metals is somewhat higher than it would otherwise be if governments and central banks were not holding large stocks of these metals in their vaults instead of throwing them on the market Even with this restriction in supply, the face value of most coins is much higher than the value of the metal in them Our quarter, for example, has so little of actual silver in it that it pays counterfeiters to use real silver in their counterfeits rather than attempt to substitute a baser metal

Since money is exchangeable for all other goods and services, the value of a unit of it should be capable of expression in terms of the quantity of goods and services it will buy Economists for many years have been making explanations of the value of money and of what happens when its quantity changes The crude quantity theory was one of the earliest and least accurate, but we can profit by using it as a point of departure: *The value of a unit of money varies inversely with the number* *of units of money and directly with the number of units of goods and services in existence* This theory has several obvious defects Not everyone who holds money wishes to spend it at once or even at the same rate from one time to another Not everyone who has goods to sell would be able to raise his prices simply because there is more money in existence Even more important, the statement ignores the fact that, under certain circumstances, an increase in money may cause an increase in the production of goods (loans in the form of created checkbook money used to buy raw materials or pay labor) It also ignores the fact that increased production and employment may cause the creation of more money (larger payrolls mean more spending, and retailers of consumers' goods may borrow checkbook money to replenish their stocks of goods)

A somewhat better statement is given in Professor Irving Fisher's formula

$$MV + M\ V\ = PT$$

where M = the amount of money in circulation
V = the velocity of circulation of M
M' = the amount of bank credit in circulation
V' = the velocity of circulation of M'
P = the general price level
T = volume of trade

Even this is not such a great step ahead of the old quantity theory Taken literally, it is a mere truism the means of payment ($MV + M'V$) equal the total payments that are made (PT) It also ignores the time element that is inherent in the equation Present means of payment are actually being used to pay for a volume of trade which occurred some time in the past and was contracted for at prices which prevailed still further in the past It does not tell us either how the cause and effect relationship runs between the different items in the equation, although Fisher himself usually seems to feel that the means of payment is the most important causal effect and that P is the principal dependent variable. Whether P or T is affected most by an increase in $(MV + M V)$ depends upon the *elasticity of supply* of goods in general If the supply is elastic (due to unused resources), T increases by a greater proportion than P, if the supply is inelastic, most of the increase is concentrated in P

A better statement of the relationship between money and prices is the following The value of money varies inversely (although not necessarily in any constant ratio) with the ratio of the *effective quantity of money* to *money work to be done* The initial change may come from either element

Factors which may *increase* the effective quantity of money

1 An increase in bank lending (of check-book money)
2 An increased issue of government money
3 An increase in velocity of circulation (the number of times in a given period that money passes from hand to hand)
4 Government borrowing of funds that would otherwise have remained idle
5 An increase in the amount of "book credit" extended by business firms to other firms or to individuals
6 Dishoarding

Factors which may *decrease* the effective quantity of money

1 Repayment of bank loans which are not immediately lent again by the bank
2 Decreases instead of increases in Nos 2, 3, 4, and 5 in the list above
3 Hoarding

Factors which may *increase* the money work to be done

1 Greater production of goods
2 Increased taxes
3 Separation of previously integrated firms
4 Entrance of previously self-sufficing farmers into the money economy
5 An increasing population

Factors which may *decrease* money work to be done

1 Integration of a group of firms which previously made payments in successive stages of the process of production or marketing
2 An increase in subsistence farming
3 Decreased taxation
4 Declining population
5 Extinction of business firms

These lists do not exhaust the number of elements that might be included under each category It is not always easy to classify an item as belonging under increase in effective quantity of money or under a decrease in money work to be done This does not matter, as both tend towards higher prices and lower value of money Likewise the distinction between items that decrease the effective quantity of money and items tending to increase the money work to be done is difficult to draw and is not particularly important Both of these kinds of items tend towards lower prices and a higher value of money

This type of analysis is particularly useful in showing us the difficulties of any authority which attempts to control the value of money The authority must have the answers to these questions and many others and in addition must be able to do a considerable amount of successful forecasting

The following section gives an explanation of another theory of the way money works In many respects it does not differ markedly from the above analysis, and it may be simpler for some readers to grasp

Cash Balances

We might start by asking ourselves, "What is there about money which necessitates an explanation of a change in its quantity different from our explanation of the change in quantity of any other good?" Our answer is that, unlike other goods, money is never consumed, nor, with the exception of pure metallic currencies, does the cost of production of money have any direct relation to its value All goods, with the exception of money, eventually become consumers' goods When consumers' goods are cheap so that people are able to obtain more of them for the same amount of effort, they are able to consume more, and they do so Not so with money When a person receives a greater amount of money, there is only one of four things he may do with it (1) he may spend it for consumers' goods, (2) he may spend it for producers' goods, (3) he may hold it as a cash balance to be used in the future for purpose (1) or (2), or to pay off his debts as they fall due, (4) he may lend it to other people In any event, money is received only to be passed on again sooner or later

Each person and each firm determines for itself what the amount of its cash balance will be The amount of cash balance which is held will depend upon individual circumstances There are several factors that might influence the amount of cash balance which a person decides to hold Some of these are (1) the knowledge that certain payments will have to be made in the near future will cause a person to try to build up his cash balance so that he can meet the payment—thus we regularly find some people holding greater cash balances at the first of the month than at other times, (2) most people regularly try to maintain at least a certain minimum cash balance to meet "unanticipated expenditures", (3) the possession of assets that can readily be turned into cash (such as a savings account at the bank or the ownership of government bonds) would tend to lower the amount of cash balance which an individual needs to maintain for emergency expenditures, (4) if the payments which an individual receives are fairly well synchronized with the payments which he has to make, he will be able to get along on a smaller cash balance than if these payments were different in timing Thus, a person on a monthly salary who "charges" goods and pays for them once a month will have a large cash balance only in the brief interval between the time he receives his salary and the time he pays his bills, (5) it is also obvious from the preceding statement that a person who can obtain credit may maintain a smaller average cash balance than a person with the same expenditures who must pay them all in cash Still other conditions which cause people to maintain a greater or smaller cash balance could be listed.

Given the individual's peculiar conditions and circumstances, as discussed above, there is one element which will always tend to induce him to keep his cash balance as small as possible This is the fact that his cash balance is always "idle" in the sense that it is not yielding him an income If he can in any way reduce his cash balance without inconveniencing himself, he may invest the difference in some form of loan which will yield interest and thus increase his income Or, if his cash balance is in excess of the amount which he requires, he may spend the excess amount on consumers' goods In either event he will derive greater satisfaction than would be the case if he held the excess balance as idle cash

Effects of an Increase in Quantity of Money

We must now trace the effects of an increased amount of money upon this situation Let us suppose that the government prints an additional amount of paper money to pay for its expenditures instead of collecting taxes for this purpose The people who are relieved of paying the taxes now have their incomes increased by the amount of the tax which they formerly paid Their other circumstances being unchanged, these people will not add the extra income to their cash balances for any considerable period of time, but will either spend it for more consumers' goods or will spend it for producers' goods by the process of investment

This spending is really an increase in demand in terms of money for the particular goods or services which these people buy with the additional income The dealers who are selling these goods may not be aware at first that demand has increased and may continue for a time merely to sell more goods at existing prices rather than to raise their prices immediately When the full effects of the increased demand are felt and recognized, the price will rise for each good whose demand has increased, the amount of the price increase depending upon both the proportion of increase in demand and the elasticity of supply of each particular good

The dealers who sell these additional amounts of goods and services and who receive the increased supply of money will in turn not be eager to increase their cash balances over the amount they have previously been holding They in turn will spend the increased receipts for business purposes or will increase their personal expenditures, or both The goods and services which they buy in their turn will show the same tendency to rising prices as explained in the previous paragraph The money will then pass with similar results into another set of hands

If only this one addition, and no further additions, are made to the amount of money, the effect will eventually dissipate itself and further price rises will be stopped This will happen because, even though people are receiving greater money incomes, as the prices of the goods which they buy are rising (or have risen before the increased flow of money reaches them), people will begin to decide that they need a larger cash balance to hold for their expenditures (For instance, if I am in the habit of dropping into a movie any time the mood strikes me, and the price of movie tickets should rise from 25c to 50c, I would now have to carry a half dollar instead of a quarter in my pocket for this purpose) When the additional amount of money is all retained in the cash balances of various people and not passed on immediately as it is received, the price rises will come to a stop

During the period of rising prices, some people will gain and others will lose Those who receive their increased incomes at the start of the period will gain because the prices of the goods they buy will not yet have risen to their full extent, hence those people will be able to obtain more goods for a time than they formerly did Those whose incomes rise last, or do not rise at all, will lose, because, while they receive the same incomes that they formerly did, the rising prices will prevent them from buying the same amount of goods with their incomes

We chose as our example an increase in the quantity of paper money printed by the government We might equally well have represented the increased quantity of money as an increase in the amount of bank credit extended in the form of checking accounts by the banks In this case the borrowers who obtained the checking accounts would be the first ones to increase their expenditures However, exactly analogous results upon prices and cash balances would follow upon an increase in "bank money" as would follow an increase in government paper money

Inflation

There are perhaps nearly as many definitions of inflation as there are people who use the term A short list of some of them may prove interesting Inflation is

1 Any increase in the quantity of money

2 Any increase in general prices

3 Any increase in prices not caused by increased consumer preference for the goods or by a decreased physical supply

4 Any increase in government debt which may affect prices

5 Any increase in the effective quantity of money

6 Any increase in the effective quantity of money which is greater than the increase in money work to be done

7 Any increase in money and prices which does not result in increased output of goods

8 Any increase in prices which occurs after full employment has been attained

9 Maintenance of a constant price level when costs are falling

10 Any increase in capital investment which cannot be continued without a continuous increase in the quantity of money

11 A situation in which the public loses faith in the ability of money to keep its value and rushes to get rid of money in exchange for commodities or securities which promise to be a better store of value

Numbers 7 and 8 are the definitions of Arthur D Gayer and W W Rostow Number 7 they would apply to partial "pure inflation" and Number 8 they would apply to full "pure inflation "

Numbers 7 through 11 may all be regarded as dangerous inflation, although the degree of danger implied in the different definitions might be a matter of dispute among different authors

The Dangers of Inflation

There is no sacredness about any particular price level The important point is the relationship between individual prices By prices here we mean all prices of goods and services and all prices of factors of production Unfortunately not all prices are equally flexible Some prices are rigid, some are sticky, and some are extremely flexible A period of depression generally lasts longer than it otherwise would because of the failure of these prices to adjust themselves to each other The first effects of a period of recovery brought about by increased activity due to currency expansion (or by increased money due to borrowing from the banks by borrowers with increased confidence) may help to raise some flexible selling prices relatively to some rigid or sticky costs and so increase output and employment

As the rise in general prices continues, however, these tendencies towards equilibrium do not continue Flexible cost elements begin to overtake fixed selling prices Monopoly controls, whether by industry or labor, accept higher prices or wages without much increase in output or employment Those with fixed incomes are forced to curtail the volume of their buying This curtailment is not necessarily confined to those industries which are no longer increasing output and employment, it may also result in smaller purchases from those industries which are capable of further expansion Thus we may have, and have had in the past, conditions of partial pure inflation even before full employment is reached Speculative purchases of agricultural products, of minerals, of land, and of securities will have been made at prices far beyond any prices except those which it is hoped will be paid by others even more foolish Eventually the bubble bursts Banks become doubtful, and either they do not increase or they actually decrease their loans Individuals and firms who have made profits and are more farsighted than the rest start to repay bank loans and reduce their check-book money We are then started on the vicious spiral of deflation Those who have lived through the period from 1929 to 1933 do not need to have the picture painted for them

If full employment happens to be attained, then any further expansion of money merely results in competitive bidding up of the prices of goods and services without any added production It may be questioned, however, whether full employment attained by expanding bank credit can be *maintained* if monetary expansion is halted at the full employment level This does not seem probable if maladjustments have arisen during the expansion phase

Perhaps the remedy lies in ironing out specific maladjustments at any given price level rather than to hope that they will all come out in the wash of expanding prices

CHAPTER XXXI

Government Borrowing and Creation of National Income[1]

IN CHAPTER XXVII a budget deficit was defined as an excess of government expenditures over income and it was pointed out that such a deficit would be financed by government borrowing It was also noted that such a deficit might be either unanticipated or due to deliberate fiscal policy If the Treasury officials are astute, however, unexpected deficits will be small as compared with the total budget and negligible as compared with the total national income Moreover, to the extent that budget deficits are unexpected, they are also unavoidable We will therefore devote most of our attention to government borrowing as a deliberate fiscal policy

Funded and Unfunded Debt

The unfunded debt of a government consists of its accounts payable, borrowings from banks, and borrowings on short-term notes The government may borrow for short periods either (1) because income receipts do not coincide exactly in time with the dates for making payments (this may be the case even when the budget balances for the entire year), or (2) because the market for government bonds appears to be unfavorable at the moment and is expected to be better in the near future, or (3) because the interest rates on short-term securities are much lower than those on long-term securities

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[1] I am indebted to Professor Fritz Machlup for suggesting that this chapter be written, for its outline, and for most of its theoretical content

The funded debt of the government consists of interest-bearing bonds with a definite maturity date Such bonds are always issued for more than one year and generally the maturity date is ten or twenty years or more from the date of issue Some governments issue bonds without a fixed maturity date In this case the bonds are redeemable at the option of the government and not at the option of the bondholder A funded debt may arise in one of three ways (1) through the funding of previously unfunded debt, that is, by long-term borrowing to repay short-term obligations, or through borrowing to repay old funded debt as it falls due, called *refunding* (this process is simply a change in the form of debt and need not concern us further *unless a new unfunded debt is contracted* which would then represent a net addition to the total debt), (2) through the decision of the government to reduce taxes and to meet some part of its regular budgetary expenditures by borrowing rather than by taxation (this method has special economic implications which will be considered in the latter part of the chapter), (3) through the decision of the government to undertake additional expenditures and to pay for them by borrowing rather than by additional taxation It will be observed that categories (2) and (3) are general causes for increase in debt, which may be either funded or unfunded

For our present purposes, the form of the public debt is not a material question Our immediate concern is with *net additions to the total public debt* which are undertaken for the purpose of *additional government expenditures* Our only concern with the length of time of the debt is as follows Since debt repayment (that is, repayment out of taxes, not simply refunding) will exert an opposite economic effect to government borrowing, we assume, in the discussion which follows, that a debt is not repaid until it has had time to exert its full effect upon incomes

Sources of Government Borrowing

Government bonds may be sold to individuals, to corporations and business firms, to financial institutions (insurance companies and investment trusts), to government agencies (for social security and other retirement or pension funds), to commercial banks, and (indirectly) to the Federal Reserve Banks The sale to different buyers has considerably different economic effects, depending upon the source of the funds with which the bonds are purchased

Individuals who buy government bonds may do so out of several sources of funds, each of which has somewhat different implications for our problem (a) The bonds may be purchased out of current savings from income which has just been received In this case if the government spends the money for productive purposes, we might have a mere change in the form of investment (government investment instead of private investment) If the government spends the money on consumption (say, to buy food for relief clients), we have government consumption instead of private investment or spending In all of these alternatives there is no increase in money flow and no new income has been created (b) The bonds may be purchased out of idle bank deposits This will tend to increase the money flow (c) The bonds may be purchased from hoarded cash This will increase money flow and may also tend to increase cash reserves somewhere in the banking system Both (b) and (c) will represent a net increase in total investment or total consumption, depending upon the purpose for which the government spends the borrowed funds

Business firms may buy government bonds. (a) from current sales receipts instead of replacing inventories or of making maintenance expenditures (disinvestment on the part of the firm) The government may then use the funds for investment or consumption, as we have seen above This is merely replacement of private investment by government investment and does not increase money flow (b) The bonds may be purchased from idle bank deposits (This is called "dishoarding" by some authors) This practice will increase the money flow in the economy and will create new income

Government agencies, such as the Social Security Fund, obtain their funds from what we may call *extra budgetary taxation* (payroll taxes, pension deductions from government workers' salaries) Unless these funds are turned over to the Treasury to be spent, the government will actually be hoarding money If this deflationary influence is to be avoided, the government's expenditures must increase by the amount of the net increase in the Social Security Fund[2] So the Treasury borrows the money from the Social Security Fund and gives government bonds in exchange for it Since expenditures are equal to the taxes collected for this purpose, this does not increase money flow

Commercial banks (a) may buy bonds as someone happens to repay bank loans (this creates no increase in the money flow), (b) may buy bonds to increase their earning assets (this is called deposit creation, or credit creation, and does increase the money flow) From June, 1933, to December, 1936, member bank holdings of government securities increased by 8 billions of dollars, most of which represented a net increase in created bank deposits

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[2] Since it was not deemed advisable to invest in private securities (for one reason there are not enough first- or even second-grade private securities to equal the 40 billion dollars which the fund might reach if the payroll tax schedule of the original law is retained), the Treasury is ordered to issue special 3 per cent bonds to the fund Although the 3 per cent interest constitutes an apparent additional income to the Social Security Fund, it is at the same time an additional obligation of the Treasury Eventually new taxes will have to be raised for the government to pay the interest, or other government expenditures will have to be reduced (Amendments are now being considered to change this provision)

Open market purchases of the Federal Reserve banks will be made by created Federal Reserve bank deposits and will increase money flow To the extent that the bonds are bought from member banks, or their customers, this will mean an increase in member bank deposits with the Federal Reserve banks Since such deposits constitute the legal reserve of the member banks, they may be in a position to increase their own customers' created deposits by some multiple of the increase in their Federal Reserve bank deposit It is illegal for the Federal Reserve banks to purchase bonds directly from the government, but they can and often do purchase bonds in the open market (from member banks and others) at the same time that the Treasury is selling bonds[3]

Financial institutions other than banks—for example, insurance companies and investment trusts—who may purchase government bonds, act mainly as agents for individual savers and therefore simply transfer existing funds If we wish to inquire further into the source of these funds, we must go back to the individuals (or business firms) who paid them to the financial institution

We are now prepared to make certain general considerations Let us first take up those sources of government borrowing which do not increase money flow The question to be considered is Would the funds have been invested otherwise had the government not borrowed them? If the funds would not have been invested, then the government borrowing and expenditure prevents the funds from becoming idle and so prevents a deflation of monetary circulation If the funds would have had another outlet, then we may say that the government has competed with private industry for the funds and private investment has been foregone

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[3] To the extent that member banks buy government bonds on their own account and do not resell them to the Federal Reserve banks, the effects on money flow are the same as those outlined for the other commercial banks

A brief tabulation may help us to summarize the effects upon money flow of these various sources of government borrowing

LENDER	SOURCES OF BORROWED FUNDS WHICH REPRESENT MONEY FLOW THROUGH DIFFERENT CHANNELS	SOURCES OF BORROWED FUNDS WHICH REPRESENT INCREASED MONEY FLOW
Individual	Current savings from income just received	Idle bank deposits Idle cash
Business Firm	From current sales receipts instead of maintenance or inventory replacement	Idle bank deposits
Government Agencies	Payroll taxes and other extra budgetary taxation	
Commercial Banks	Replacing loans just repaid	Newly created bank deposits
Federal Reserve Bank		Newly created deposits (which may constitute member bank reserves against which still more deposits may be created for member banks customers)
Financial Institution	Acts as transfer agent Effect on money flow depends on source of funds that the institution obtains from individuals or firms (See above)	

We have no way of arriving at an arbitrary or definite answer to the question of whether the funds would have been invested had the government not borrowed them Presumably, if the government had not been competing for funds, the interest rate would have fallen somewhat This lower rate might then have attracted a large number of borrowers who wished to expand their capital or to undertake new enterprises The mere fact that the government borrows at a low rate of interest does not mean that private firms could have obtained funds at anywhere near the same rate The government bonds may have been bought by nervous individuals (or banks or firms) who would otherwise have simply held cash but who buy the government bonds because they consider them the most "liquid" form of asset which still yields them some return

On the other hand, it may be argued with some degree of plausibility, that mounting government expenditures, by weakening public confidence, may frighten off as much or more investment than is being undertaken by the government The argument runs in this fashion Potential investors, who see government debt mounting, start to worry about when and on whom taxes will be levied to pay the interest and to repay the principal They are afraid that if they invest in some firm, subsequently imposed taxes will prevent them from earning a return on their investment and perhaps even endanger the safety of the principal Even if taxes are not imposed directly on business firms, their prospects may be impaired by other taxation Thus, new higher income taxes might impair the market for a firm manufacturing luxury goods, or new sales taxes, by reducing the income of the lower-paid workers, might seriously alter the demand for a firm making low-priced goods

If there is fear of an immediate inflation, this would result in a heavy volume of investment as people rush to reduce their cash balances and to acquire instead some asset which might give more promise of retaining its value If, instead, there is simply the vague fear of possible inflation at some undetermined future date, this would be apt to induce the desire to remain extremely liquid in order to be able to take the best advantage of investment opportunities when the time does come (The fear may be strong enough to preclude investment in fixed interest-bearing securities, but not strong enough to induce purchase of equities or commodities. Hence, "When in doubt, hold cash")

During a period of business decline, since other investment opportunities are rare, the presumption is that government spending will act to reduce the extent of deflation This is accomplished through "facilitating the process of disinvestment" For example, when a WPA worker buys a suit of clothes, the storekeeper (if prices are declining) either will not replace the suit in his stock at all, or will replace it with one which costs him less Either of these courses will decrease the storekeeper's investment in inventory (the former, of course, represents the greater decline) To the extent that government spending facilitates the orderly disposal or revaluation of inventories in this manner, it may prevent the "dumping of inventories on the market" and the consequent panic prices In periods of decline as inventories are sold, the tendency is likely to be either to use the proceeds to repay bank loans or to hold idle cash balances (both deflationary measures) The government, by borrowing and spending an equivalent amount of money, may offset this deflationary influence

In a period of recovery, government borrowing and spending, to the extent that it causes higher interest rates or higher costs of production through competition with private business for resources, may simply be displacing what would otherwise be a similar volume of private investment If lack of confidence is also a factor, the net effect on total investment may be negative

The Multiplier Theory

We now turn our attention to those government expenditures financed by borrowing from sources that actually do increase the money flow. As the "new money" is passed on from one person to another in the course of a year, it may create not only one income but perhaps two or more This brings us to a consideration of Mr Keynes' famous doctrine of the "investment multiplier "[4] First of all, Mr Keynes gives us a new term which he calls the "marginal propensity to consume,"[5] which is the ratio of an increment in consumption to an increment in income He assumes that, due to certain "psychological propensities," people will not spend all their income on consumption goods and that they will spend a smaller part of income on consumption goods as their income rises The proportion of additional income that people will spend on consumption goods is used in an attempt to measure the amount of increase in total national income which will result from any given increase in investment (or in government deficit spending) To keep the presentation simple for the non-mathematical reader, I shall try to translate Mr Keynes' equations into words as far as is possible

If we call k the multiplier,

$$(\text{Increase in Income}) = k\,(\text{Increase in Investment})$$

k is determined by the marginal propensity to consume, the relationship being expressed by the following equation

$$(\text{Marginal Propensity to Consume}) = 1 - \frac{1}{k}$$

Or, this may be written

$$k = \frac{1}{1 - (\text{Marginal Propensity to Consume})}$$

By substituting various possible assumed or estimated values for the marginal propensity to consume, we arrive at the related value for k, the multiplier Thus, if at a certain time people will consume one-half of any additional income they receive, the equation becomes

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[4] Keynes, J M, *The General Theory of Employment Interest and Money,* Chs 8, 9, 10, Harcourt, Brace & Co, New York, 1936 I have not hesitated to use non-Keynesian language wherever it appeared to simplify the presentation

[5] The use of the concept of a "marginal propensity to consume" is a 'catch-all for a large number of assumptions, many of which may raise doubts as to the validity of the multiplier doctrine or at least as to its practical applicability

$$k=\frac{1}{1-\frac{1}{2}}$$

which is equal to 2 Substituting this value for k in our first equation, we find that a given increase in total investment (or of government deficit spending) of $100 would result in an increase in total income of $200 In a similar way a marginal propensity to consume of 3/4 would give a multiplier of 4, a marginal propensity to consume of 4/5 gives a multiplier of 5, a marginal propensity to consume of 7/8 gives a multiplier of 8, and so on

The people who first receive the "new money" as a result of investment or government spending are called the *primary income recipients* and their income is called *primary income* Those who receive the money later on as it is passed from hand to hand are called *secondary income recipients* and their income is called *secondary income* For our purposes, we may construct a table based largely on non-Keynesian concepts which may give a somewhat different interpretation of the multiplier doctrine We assume that the government is spending "new money" at the rate of $100 in each successive income period and that the marginal propensity to consume is 4/5, resulting, according to Keynes' equation, in a multiplier of 5

The first column of the table indicates the successive income periods The second column is based on the assumption of new government spending (primary income) of $100 per income period Note that it is not just one expenditure which is then discontinued but that the government is assumed to spend $100 of "new money" each income period We are now beginning to part company with Mr Keynes by introducing the concept of an income period Not only does Mr Keynes omit the element of time from the multiplier equa-

Table II
THE INCOME MULTIPLIER

Income Period	Government Expenditure	Secondary Income											Total Increase of Income
		Income Recipients No											
		2	3	4	5	6	7	8	9	10	11	12	
1	$100												$100 00
2	100	$80											180 00
3	100	80	$64										244 00
4	100	80	64	$51 20									295 20
5	100	80	64	51 20	$40 96								336 16
6	100	80	64	51 20	40 96	$32 77							368 93
7	100	80	64	51 20	40 96	32 77	$26 21						395 14
8	100	80	64	51 20	40 96	32 77	26 21	$20 97					416 11
9	100	80	64	51 20	40 96	32 77	26 21	20 97	$16 78				432 89
10	100	80	64	51 20	40 96	32 77	26 21	20 97	16 78	$13 42			446 31
11	100	80	64	51 20	40 96	32 77	26 21	20 97	16 78	13 42	$10 74		457 05
12	100	80	64	51 20	40 96	32 77	26 21	20 97	16 78	13 42	10 74	$8 59	465 64

tions, but he also specifically disavows it in this connection[6]

We must first inquire into the nature of and length of time of the income period The relevant income period for our purpose is what Professor Machlup[7] calls "the income propagation period," which is the length of time necessary for income received by one person to be transformed into net income received by another person This period will be different from, and may be considerably longer than, the period involved in the "transactions velocity of circulation of money," since many money payment transactions are not net income transactions An example may help us Suppose that WPA workers spend part of their pay (primary income) buying suits from a storekeeper who sells them exactly at cost Thus no part of the money is net income for the storekeeper (this is a non-income transaction) Suppose, then, that the storekeeper uses the money to buy suits from a wholesaler who also sells at cost price (another non-income transaction) Now suppose that the wholesaler uses the money to buy suits from a manufacturer who sells them, out of stocks on hand, at exactly what they cost him to make (still no net income) Finally, suppose that the manufacturer decides to make more suits and hires workers for this purpose with the money he has received from the wholesaler At last, when the clothing workers receive their pay envelopes, the money spent by the WPA workers becomes net income for a second group We see that three non-income transactions have intervened between "income paid out" and "net income received"

In our illustration if the storekeeper had sold the suits for something above what they cost (to cover his own wage and possibly interest on his own investment), then this part of the money received would constitute net income for him at the moment he received it The income propagation period for this part of the money is thus considerably shorter than for the remainder, being merely the interval between the time the WPA workers receive their pay and the time they spend it at the clothing store (That part of the money which represents the cost of the suits is still a non-income transaction as far as the storekeeper is concerned) In their turn, the wholesaler and the manufacturer may also be selling so as to make a net income and this will shorten the income propagation period on other parts of the money That part of the money which is paid to the clothing workers, however, will not be net income until it has passed through all previous hands and they receive it

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[6] Keynes, J M, *The General Theory of Employment Interest and Money,* p 122, Harcourt, Brace & Co, New York, 1936 "I have found, however, in discussion that this obvious fact often gives rise to some confusion between the logical theory of the multiplier, which holds good continuously, *without time lag, at all moments of time,* and the consequences of an expansion in the capital-goods industries which take gradual effect, subject to time-lag and only after an interval' (Italics supplied)

[7] Machlup, Fritz, 'Period Analysis and the Multiplier Doctrine," *Quarterly Journal of Economics,* November, 1939

We see that the average income propagation period depends upon (1) the length of time that the money is held by the primary income recipients (WPA workers), (2) the number of non-income transactions which may intervene before each part of the money becomes net income, and (3) the length of time that part of the money which represents non-income transactions remains in the cash balance of each person through whose hands it passes Professor Machlup "guesses" that the average income propagation period for the United States on all income is about three months Although he points out that the marginal income propagation period (the period involved for a small addition of "new money" to total income) may be either shorter or longer than the average income propagation period, he assumes for his argument that it also is three months and we shall make the same assumption

Now let us examine the table again The workers employed by the government in Income Period No 1 spend 4/5 of their income, according to our assumed marginal propensity to consume, and after one full income propagation period it appears again as $80 income for the group labeled Income Recipients No 2 These, in their turn, spend 4/5 of their new income, or $64, which is received as income by Income Recipients No 3 in the third period and so on Meanwhile in Income Period No 2 another $100 has been paid out by the government and started on a similar course The last column shows the total increase of income which is being received in each income period The reader may observe that, if we continued to expand the table for a number of periods, the total income figure would approach, but never quite reach, a full $500 as we continued in each income period to add 4/5ths of a smaller and smaller amount It would require thirty-three income periods (or 8 1/4 years on our assumption of a three-months' income period) for the total to reach $499 06

This is too far into the future for any government to look for revenue with which to balance its budget It is idle to assume that "all other conditions" will remain unchanged for such a length of time, particularly when these conditions will very probably be altered by the very fact of government spending alone So instead of looking at the ultimate theoretical value of the multiplier, let us find the value for shorter periods (still assuming for the time being that the theory itself is valid) Total increase in rate of income at the end of the first year (assuming a three-months' income period) is $295 20, of which $100 is the government expenditure, giving a multiplier of 2 952, or slightly under 3, as compared with an 8 1/4 year multiplier of 5 At the end of the second year the multiplier is 4 16 At the end of the third year the multiplier is 4 65, still about 7 per cent short of the final assumed value

For short periods the Treasury is more apt to be interested in aggregate income created rather than the increase in the rate of income Total income created for the first year is found by adding the first four items in the last column of the table, and amounts to $819.20, of which $400 is government expenditure, giving a multiplier of only 2.05. At the end of the second year, total income created for the two-year period is $2,335.54 and total government expenditure is $800, the multiplier being 2.92. At the end of the third year, total created income is $4,137.33, government expenditure is $1,200, and the multiplier is 3.45.

The Leakages

The reader may have already started to wonder why only 4/5 of the new income is spent and what becomes of the amount that is not spent during the period of expanding income. Some of it may be used for debt repayment. In this case it represents no new income to the recipient but merely the return of the principal to the creditor. It will not become income for anyone again unless and until the creditor spends or reinvests it. Some of the money may be absorbed in idle cash balances. To the extent that prices rise as a result of the new money flow, individuals and business firms will find it desirable to carry larger cash balances and will not feel free to spend the full amount of the new income as they receive it.

Note that if at any stage of our table the income recipients should happen to take their income and buy government bonds with it, this would cancel out an equivalent amount of bank deposit creation. To put it simply: To the extent that these income recipients invest in government bonds, the government will not be spending "new money" and so will not be adding to the money flow nor creating new income.

Defects of the Multiplier Theory

If the multiplier theory would actually work without qualification as Mr. Keynes and some of his followers in this centrated on particular lines Thus, if all government spending were concentrated in the building of concrete roads, the prices of cement, crushed stone, gravel, and reinforcing iron might rise to such an extent as to make their cost to private industry almost prohibitive So long as there are large numbers of unemployed workers, government competition for labor in general may not cause wage rates to rise sufficiently to prevent workers being employed by private industry, but if the government employs large numbers of workers of particular types of skill, then "bottlenecks" may develop, that is, private industry may be prevented from hiring large numbers of unskilled workers because there is an insufficient number of the right type of skilled workers to go with them to make up the desired production organization This condition will tend to be the more serious as "prevailing rates of wages" are increasingly paid on government contracts

On the other hand, the doctrine of the multiplier does not include the possible induced rise in private investment which may be caused by increased consumption This is the principle of acceleration of derived demand as enunciated by Professor J M Clark[8] If this principle operates, the effect may be much greater than that indicated by the multiplier Professor Clark points out, however, that the extent of this derived demand will depend very largely upon whether businessmen expect the boom induced by deficit spending to be of long or short duration If they do not expect "pump-priming" to produce lasting results, they will simply try to make the best possible use of existing capital equipment, and such investment as does take place is likely to be in the form of inventories rather than in long-term capital expenditures

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[8] Note, however, Professor Clark's very careful qualifications of this doctrine as applied to government deficit spending in his paper 'An Appraisal of the Workability of Compensatory Devices,' *American Economic Review*, Vol XXIX supplement, March 1939, p 195 ff

The Employment Multiplier

So far our discussion refers only to the possibilities of increased money income and increased money expenditures which may or may not be occasioned by deficit spending However, the arguments of the government spending advocates, who base their case on Mr Keynes' theories, center almost entirely around their claim that "government spending is the only way to obtain full employment of resources" The only resource for which full employment is economically imperative seems to be that of labor Therefore, let us focus our attention on the possibilities of more extensive employment of labor resulting from such increased money income as may happen to result from greater government spending

Following the terminology of R F Kahn,[9] the employment caused directly by the government expenditure (including the employment of those who manufacture the materials the government purchases) may be called *primary employment* and the employment resulting from the spending of those who receive the government funds may be referred to as *secondary employment* (Note at the start that, unless government spending actually does cause an increase in total spending, there will be no increase in total employment since, as Mr Kahn himself states, there is just as much secondary employment to be expected from private investment as from public investment)

The amount of employment resulting from increasing money income depends primarily on two things (1) wage rates, (2) commodity prices If wage rates rise at the same rate that income rises, there will be no secondary employment and no more goods produced

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[9] Kahn's own views as to the probability of increased employment are somewhat more sanguine than those expressed here See "The Relation of Home Investment to Unemployment," *Economic Journal,* Vol XLI, p 173

If wage rates remain constant, there will be increased employment resulting from the enlarged income, but technical or institutional conditions under which output would be expanded will determine the extent to which the enlarged income causes increased employment and the extent to which the income is merely absorbed by rising prices for the same output of goods (Under a system of universal monopoly there might simply be augmented monopoly rent and no more employment) Therefore, with constant wage rates the increase in employment depends finally on the elasticity of supply of various commodities that the income recipients attempt to purchase Increased employment might be proportional to the increase in income This, however, is very unlikely even in the midst of a depression with the existing unemployed resources When plants are being operated at depression levels, only the most efficient machines and the most efficient workmen are being put to work Raw materials may be temporarily selling at less than replacement cost It follows that any increase in demand which causes serious reductions in inventories will meet with rising supply prices for many lines of goods Owing to rising supply curves, the ratio of non-wage income to wage income will increase

Government Investment to Prevent Secular Stagnation

According to Keynes, Hansen,[10] and others, wealthy countries have a high propensity to save At the same time they have a large stock of capital which has a low marginal productivity These authors also claim that rates of interest cannot fall sufficiently low to induce enough investment to be undertaken to absorb savings because at low rates people prefer to carry their funds liquid (Liquidity preference curve becomes infinitely elastic) In previous periods one could count on new investment opportunities to develop through (a) the rate of population growth, (b) opening of new areas within the country and abroad, (c) new inventions requiring large amounts of capital. The authors claim that these avenues of investment opportunity are now closing so as to cause secular (long-run) stagnation and hence they believe that government investment is necessary to offset the failure of private investment.

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[10] See Hansen, A H, "Progress and Declining Population,' *American Economic Review,* Vol XXIX, No 1, March 1939, pp 1–15.

It is hard to argue against any theory based on so many conjectures, such as a lack of future inventions. Concerning the interest rate and the sensitivity of investment to small changes in it, let us consider the effect upon the price of bonds. Suppose that the interest rate is at 2 per cent and that a bond which pays $2.00 per annum sells for $100.00. Now suppose that the rate of interest were to fall to 1.8 per cent. A bond of long term paying $2.00 would then have a capitalized value of $111.11. This would represent a rate of gain in capital value of 11 per cent for those who bought the bonds at $100.00, in addition to which they would have the $2.00 interest payment, making a total gain of 13 per cent during the year in which the market rate of interest fell from 2 per cent to 1.8 per cent. The very expectation of such a fall in the rate of interest (if the rate is expected to remain low for some time, as is indicated by the secular stagnation claim) should send intelligent investors stampeding to buy bonds. This would provide a good market not only for old bond issues but also for any new issues which paid anything over 1.8 per cent at the time of issue.[11]

Concerning the marginal efficiency of capital, the whole return depends on the cost of capital equipment and on variable costs in relation to selling prices. An adjustment in cost-price relationships may work miracles in the marginal efficiency of capital Wages constitute the principal element in most variable costs If we are committed to a policy of unchanged (or rising) money wages, it may be that some form of inflation will be necessary to reduce the real wages to the point where labor can be fully employed

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[11] See Professor Haberler's report on Capital Formation published by the National Industrial Conference Board, 1939.

In connection with the liquidity preference argument, it is difficult to determine whether secular or cyclical causes are more responsible for the present semi-stagnation of the investment market It may even be that our old friend "lack of confidence" is the prime cause for any present desire for liquidity

Professor Hansen has made a very strong case for the influence of the rate of population growth upon the demand for capital in the last fifty years or more His analysis stands as a warning to anyone who attempts to predict the future upon the pattern of the past We may, however, raise one question in connection with the population problem Will not the changed age grouping of the population (caused by decreasing birth and death rates) result in a somewhat diminished "propensity to save"? We may expect an increased proportion of those who are "living on their savings" and a decreased proportion of those who are "saving for their retirement" At best, however, this might be only a partial corrective and could hardly offset any tremendous decrease in the demand for capital

A Possible Cyclical Policy for Government Borrowing

We have already raised the presumption that government borrowing in the recession phase of the business cycle is more apt to prevent funds becoming idle rather than simply to displace private investment or to scare it off, as might be the result of such government action during the recovery period It has also long been proposed by many economists that public works projects be undertaken as soon as private investment starts to fall off Experience has shown that it is difficult, if not impossible, to plan public works projects and to put them into operation rapidly enough for them to be of much effect in cushioning the decline

It might be possible, however, for governments to defray all expenses by taxation during normal or prosperous times and then to reduce taxation and replace it by borrowing when business conditions start to decline This policy would be most helpful if those taxes which were reduced or eliminated were those which are part of business costs It would then be desirable to have a budgetary surplus in times of prosperity to retire the outstanding debt, the heavier taxation at this time working as a contributing factor in preventing excessive inflation This program is not suggested as a cure-all, by any means, but it does seem to offer a measure for better timing of the inflationary and deflationary effects of government financing

Spending Our Way to Prosperity

No part of this chapter should be considered as an argument against government relief for the unemployed We have, however, raised some doubts as to the possible extent of secondary employment through government spending *unless there is additional induced private investment* Regardless of the numerical value of the multiplier, additional secondary income will be created on *that part only* of government deficit spending which represents a net addition to total money flow The amount of secondary employment that may be created through secondary income might be seriously curtailed by (1) rising wage rates and (2) rising prices of commodities (still assuming no induced private investment) Meanwhile, the government will be incurring additional interest charges both on that part of the deficit which represents creation of new income and on that part which represents mere replacement of private investment

Most advocates of the government spending policy do not contemplate repayment of the government debt[12] They do hope that sufficient secondary income will be created out of which taxes may be raised to balance the budget Note, however, that if the propensity to consume is the sole source of secondary income, once the multiplier has approximated its final value government expenditures must remain unchanged if total income is to be sustained at the new high level If the budget is to be balanced, taxes will have to be equal to interest payments on the past debt plus the amount of current expenditures It follows, if any attained income level is to be sustained, that either (1) The additional taxes must be drawn from what would otherwise be idle money, or (2) recipients of interest payments on government bonds must have the same propensity to consume this part of their income as was implied in the original multiplier, or (3) recipients of government interest payments must immediately invest them in new private investment On any huge volume of new taxes it seems somewhat overoptimistic to assume that condition (1) will be entirely fulfilled To the extent that a large proportion of the bonds are held by banks and insurance companies, we cannot rely on condition (2) This leaves us dependent to a considerable extent on condition (3). In other words, private investment must be prepared to take over whenever the deficit starts to be reduced, or government deficits must continue in an increasing spiral merely to maintain any income level attained by government spending Professor Hansen seems to be far more aware of this danger than Mr Keynes "Public spending is the easiest of all recovery methods and therein lies its danger If it is carried too far, we neglect to attack those specific maladjustments without the removal of which we cannot attain a workable cost-price structure, and therefore we fail to achieve the otherwise attainable flow of private investment "[18]

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[12] It can be proved mathematically that debt repayment must result in a lower total income than existed before the spending started if sole reliance is placed upon the propensity to consume

Since ultimate reliance must be placed in some measure upon private investment, the opponents of the spending program may be permitted a few pertinent questions How is such private investment to be stimulated in the future? What is the nature of the stimulants that they cannot be applied in the present rather than to invoke such a huge volume of government expenditure? If we are to depart from the strict Keynesian theory of the multiplier and to rely on private investment that may be induced by government spending, then it would seem that the government program should be designed to induce the greatest amount of capital investment rather than to "increase consumer purchasing power "

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[18] *American Economic Review,* Vol XXIX, No 1, March 1939, p 14

CHAPTER XXXII

Interregional Trade

EXCEPT for the political issues that have centered around the subject, there might perhaps be little justification for a separate chapter on interregional or international trade in a textbook on elementary economics Economically, the main factors involved are simply an extension and an application of the principles of specialization and division of labor However, since there is probably no subject within the field of economics about which the general public has been more thoroughly misinformed through misguided patriotism and self-seeking propaganda than the question of international trade and tariff, it will pay us to examine the issues in detail

Just as we found that the productivity of labor might be increased by specialization and division of labor within an industry, so may the general productivity of a country or of the world be increased by the specialized use of land and labor California orchard land would certainly be capable of growing some wheat, and North Dakota could raise its own oranges (in hothouses) But obviously, California can obtain more and better wheat by raising oranges, selling them, and buying Dakota wheat, while North Dakota can obtain more and better oranges by raising wheat, selling it, and buying California oranges Specialization by both of these states results in a greater amount of both wheat and oranges for both states than would be the case if each tried to grow the other's product instead of importing it If California, however, were still a part of Mexico instead of being a part of the United States, we should probably find some people insisting on a tariff on California oranges But merely sticking up a flag and drawing a national boundary line does not contravene the laws of economics There would be exactly as much advantage in trade between California and Dakota if California belonged to Mexico as there is at present

In the above example the economist would say that Dakota has an *absolute advantage* in the raising of wheat and a *disadvantage* in the raising of oranges, while California has an *absolute advantage* in the raising of oranges and a *disadvantage* in the raising of wheat However, trade between two regions will be profitable for both even if one region has an advantage in both products, provided that its advantage in one product is greater than its advantage in the other

The Law of Comparative Advantage

A simple illustration may show us the significance of this principle Suppose that there is a skilled corporation lawyer who is at the same time a better typist than any stenographer that he could hire Would it pay him to type his own briefs and legal documents? Obviously not, for he may be able to earn as much as $50 00 or $100 00 an hour devoting his time to the preparation of cases and pleading them in court, whereas he can hire as many good typists as he needs at salaries of $25 00 a week While the lawyer has an advantage in both typing and in pleading cases, he will gain more by devoting all of his time to the occupation in which he has the *greater comparative advantage,* that is, in pleading cases He could save himself only $25 00 a week by doing the work of one typist, and he would be losing the time that he might be spending in pleading cases, which yields him a much greater return

This principle applies to regions or countries and governs the decisions concerning industries on which resources shall be expended just as well as it governs the decisions of the lawyer who is considering in what occupation to spend his time A numerical example may supply the best illustration of this principle Let us suppose that country *A* could produce 30 bushels of wheat with one unit of labor and capital, and 20 pounds of dyestuffs with two units of labor and capital, while country *B* with one unit of labor and capital could produce only 20 bushels of wheat and with two units of labor and capital could produce only ten pounds of dyestuffs Country *A* then has an advantage of two to one over country *B* in the production of dyestuffs and an advantage of three to two in the production of wheat If each country tried to be self-sufficient in respect to these two products, the amount received by each and the total product would be as follows

	Wheat (bushels)	*Dyestuffs (pounds)*
Country *A*, using three units of labor and capital	30	20
Country *B*, using three units of labor and capital	20	10
Total product of both	50	30

But if country *A* should devote its entire three units to the production of dyestuffs, and country *B* should devote its entire three units to the production of wheat, the result would be as follows:

	Wheat (bushels)	*Dyestuffs (pounds)*
Country *A*, using three units of labor and capital		30
Country *B*, using three units of labor and capital	60	
Total product of both	60	30

On what basis will trade between the two countries now take place? *A* will not take less than 30 bushels of wheat for ten pounds of dyestuffs, since by giving up the production of ten pounds of dyestuffs it could produce 30 bushels of wheat for itself The minimum price of dyestuffs in terms of wheat is therefore three bushels for one pound On the other hand, *B* will not give more than 40 bushels of wheat for ten pounds of dyestuffs, since by giving up the production of 40 bushels of wheat it could produce ten pounds of dyestuffs for itself The maximum price of dyestuffs in terms of wheat is therefore four bushels for one pound The price will be fixed somewhere between these two limits Let us suppose that it actually happens to be 3 75 bushels of wheat for one pound of dyestuffs After trading begins on these terms, the account would then stand

	Wheat (bushels)	*Dyestuffs (pounds)*
Country *A*	37 5	20
Country *B*	22 5	10
Total	60 0	30

If we compare this with the account covering the situation when both countries were self-sufficient, we find that by specialization and trading *A* has gained 7½ bushels of wheat and *B* has gained 2½ bushels of wheat Note well that although the assumption was that country *A* had an advantage in the production of *both* products, it has nevertheless gained by specializing in that product in which it has the greater comparative advantage and buying the product in which it has the lesser advantage from country *B*

Limitations of Comparative Advantage

The foregoing illustration, although it brings out the principle involved in the law of comparative advantage, is nevertheless an oversimplification of the problem The advantage which any one country enjoys (whether absolute or relative) will apply only within certain limits of output There is no doubt, for example, that the cost of production of wheat on most farms in America *at our present output* is below the cost of production of wheat on most farms in England, France, Germany, Holland, Italy, Spain, and Switzerland. But if the tariffs on wheat were removed in all these countries, it is doubtful if we could supply them all with wheat. We could certainly expand our wheat output quite a bit, and they would obtain wheat cheaper than they do now. But if we undertook to supply the wheat requirements of all these countries, our cost of production would rise because of the higher cost of working our land more intensively, the necessity of including poorer land in wheat cultivation, and the necessity of turning to wheat cultivation land that has other and more valuable uses. In other words, wheat is produced under conditions of increasing cost. This rise in production costs sets limits to the extent to which America could capture the wheat market of the world, even if unhindered by tariffs. As American output expanded and our costs rose, various points would be found at which it would be profitable for some of the best wheat farms in each of the several countries mentioned to start producing in competition with the American farms.

In the production of automobiles for foreign sale, we could probably expand much farther than in the case of wheat without encountering increasing costs. Even here, however, it is doubtful if all foreign automobile manufacturers would be put out of business by the abolition of foreign tariffs on American cars. Even with automobiles—the classic example of the economies of mass production—costs of production would begin to increase if the individual manufacturers expanded their output far enough.

It should also be noted that it is improper and inaccurate to speak of the cost of production for any product in a particular country in the way that we sometimes see the expression used. What is meant, for example, by the statement, "The German cost of production of aniline dyes is lower than the American cost"? If the *average* cost of production of German dye producers is lower than the *average* American cost, this does not mean that all American dye firms would be forced out of business by the repeal of the tariff on dyes Only the least efficient and highest-cost American firms might be forced to discontinue by tariff repeal The only circumstance under which the foreign manufacturers of a product could force all American firms out of an industry (if tariffs were repealed) would be the case in which the foreign firms' cost of production was below that of *all* of the American firms and *would remain below the cost of all of the American firms when the foreign firms expanded their output to supply the entire American market as well as their own market* It will usually be found that where free trade exists between two countries, the effect in most industries is not to force all of the firms out of the industry in either country, but rather to confine production to the most efficient firms of both countries, thus increasing the general average efficiency of the industry and making the product cheaper for all buyers

Another factor that must not be overlooked in this connection is the costs of transportation to the point where the product is to be used In certain products whose cost of transportation is a comparatively large percentage of the total delivered cost, it will be found that foreign competitors, even without the tariff, could make comparatively little inroads upon the American markets In some products foreign firms may be able to compete with the American firms for the business along the Atlantic seacoast without being able to meet American competition in the markets for the same product further inland Thus, for example, when ocean freighters at times charge extremely low freight rates on bricks (intending merely to use them as ballast rather than to sail light), English brickyards are able to compete with those along the Hudson for the business in New York City, but the English producers are unable to ship these bricks even as far west as Syracuse, New York, and still compete with American brickyards

The Balance of Trade of Goods and Services

We must now turn our attention to the question of the "balance of trade" The first important group of writers on this treacherous subject were "mercantilists" They saw great merit in foreign trade, and alleged that the greatest advantage was to be obtained from what we now call a "favorable" balance of trade (that is, an excess of exports over imports) They believed that one of the most important kinds of wealth which a country might possess was a quantity of gold Since an excess in the value of exports over the value of imports would bring gold into a country, they advocated measures which would encourage exports and which would restrict or prevent imports More particularly, since they recognized that manufactured goods have a greater value than the value of the raw materials that are embodied in them, they advocated the importation of raw materials and generous encouragement of the export of manufactured goods

Adam Smith, the founder of systematic economics, devoted a large part of his book *The Wealth of Nations* to exposing what he considered to be the fallacies embodied in the mercantilistic doctrine But in spite of him, and in spite of the teachings of the vast majority of economists from that time to the present, many fallacious opinions concerning the balance of trade have persisted as a fund of popular misinformation on the subject of foreign trade It is unfortunately still necessary to point out the fallacies involved in adherence to crude balance-of-trade criteria of foreign trade Because of the super-vitriolic nationalism which is rampant in the world today, it is even more necessary to do so now than it might have been twenty years ago

In the first place, a country's wealth consists not of gold alone but is the sum total of all kinds of goods (including gold) which it possesses   Gold is merely one form of wealth and is not even the most important form of wealth   For example, bread, milk, meat, and a whole list of the necessities and comforts of life might be listed as more important forms of wealth than gold   To see the full implications of this, let us suppose that a crude mercantilist policy were carried to its logical conclusion so that one country managed to get hold of all the gold in the world at the cost of selling all of its other goods   The marginal utility of gold to the citizens of that country would have fallen tremendously, while the marginal utility of the other goods that they had given up would have risen to infinity   What could the people do with the gold?   They could not eat the gold   They could not wear it except for jewelry, and gold jewelry would be a pretty poor form of clothing at sub-zero temperatures   Their only recourse would be to try to use the gold to buy back some of the other goods from other countries   But the other countries would no longer have gold standard moneys (they would have been forced off the gold standard as they lost gold)   Gold would have "lost its job" as money in the other countries   The gold-owning country, therefore, could not use the gold directly as money in buying back goods   It would have to sell the gold in the commodity gold markets of the other countries for what it would bring, take the proceeds in the money of the other countries, and buy its goods with the money

International Gold Movements

Not only is a continuous "favorable balance of trade" undesirable between most countries, but it is also impossible   No country can continue for long to have its exports exceed its imports in value and receive the difference in gold unless it is trading with a gold-producing country   In the latter case, exports could continue to exceed imports in the long run only by the value of the annual gold production of the gold-exporting country If a country is trading with non-gold-producing countries, its exports to them could exceed its imports from them only until the gold stocks of the other countries are exhausted However, if both the excess exporting country and the excess importing countries are on an effective gold standard, the balance of trade would reverse itself long before the gold stock of any country was exhausted This would happen because the inflow of gold into the excess exporting country would tend to expand the currency of this country and raise its prices, while the withdrawal of the gold from the excess importing countries would tend to contract the currency and lower prices This would make the country that had received the gold a good country in which to sell but a poor country from which to buy It would also make the countries that had lost the gold good countries from which to buy and poor countries in which to sell Imports to the gold-holding country would increase, exports from it would decrease, and the gold would flow out

The return flow of gold to other countries might be prevented for a time by the imposition of still higher tariffs on imports by the gold-holding country, by a forced contraction of the currency, or by a law which prohibited the export of gold However, to the extent that any or all of these measures succeeded in reducing the country's imports of goods, it would also succeed in reducing exports by the same amount, thereby increasing unemployment in the export trades

Since the ultimate aim of crude mercantilist policy is unattainable, the reader might well raise the question as to why we are so worried about such a policy The answer is that even in attempting to achieve the ends of a mercantilist policy, irreparable damage may be worked upon the economic structure of the country which adopts the policy The influence of tariffs and subsidies will be to induce labor and capital to be applied to industries in which their efficiency is less than what it would be in foreign countries. Such industries will collapse upon the withdrawal of the tariff or subsidy, the capital in them will be lost and the labor unemployed for some time. The high prices which are induced by the unnecessarily heavy importations of gold cannot be maintained, when the inevitable decline in prices comes, the banking system of the country may collapse with it.

After the gold stocks of the excess importing countries are either exhausted or reduced to that minimum with which the countries will not part, there is one way in which the excess exporting country may continue for some time to export more than it imports: by extending loans to the importing countries to cover the difference between imports and exports. However, the interest and the principal of such loans must be repaid in goods, if it is to be repaid at all. If the excess exporting country continues to maintain or increase its tariffs to prevent the overturn of the balance of trade, such loans can never be repaid. As soon as the moneylenders in the net exporting country realize this, new loans will no longer be made, and the volume of export business which was based on the loans will no longer exist. If the loans are not repaid, as far as the exporting country as a whole is concerned it will not really have sold the goods but it will have given them away to the other countries.

The reader who is interested in doing so may apply the above analysis to the recent economic and financial history of the United States. While no one would assert that the tariff policy of the United States was the sole cause of the recent depression, nevertheless the part which the tariffs of the United States and other countries have played in both increasing the intensity and prolonging the duration of the world-wide depression is one which merits very serious study.

CHAPTER XXXIII

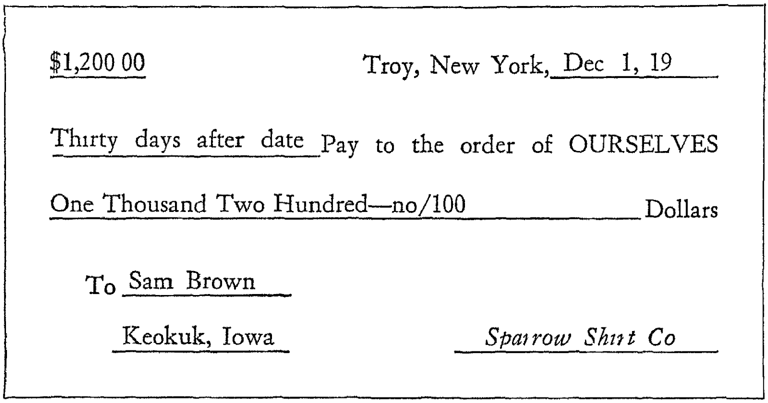
Foreign Exchange

THE MAKING of a payment to a person in a foreign country or the receiving of a payment from a person in a foreign country involves two problems the transfer of a means of payment from one place to another, and the translation or conversion of the means of payment from the money of one country into the money of another country To meet these problems in the most convenient and economical way, the businessmen and bankers of the world have developed an instrument for making payments known as the *foreign bill of exchange*

The Bill of Exchange

To understand the nature and significance of the bill of exchange we will first give a definition of the bill of exchange in general which will apply to the bills used in both domestic and foreign trade *A bill of exchange is an unconditional order, drawn by one person against a second person, ordering the second person to pay a specified sum of money to the first person, or to a third person named in the bill, or to the bearer, such payment to be made either on presentation of the bill or after a specified period of time named in the bill has elapsed* It will be seen from this definition that a bank check is one form of bill of exchange, payable on demand But other forms of bills of exchange—the ones we think of most commonly when we use the term—are those drawn by businessmen against other businessmen

An example may show us more fully the nature of the commercial bill of exchange Let us suppose that the Sparrow Shirt Company sells shirts to the value of $1,200 00 to Sam Brown, men's clothier of Keokuk, Iowa The Sparrow Company wishes to extend credit to Brown for 30 days, yet it would also like to have the money to use in its own business It may do this by the use of a *time bill of exchange* Such a bill might be drawn as follows



$1,200 00 Troy, New York, Dec 1, 19

Thirty days after date Pay to the order of OURSELVES

One Thousand Two Hundred—no/100 Dollars

To Sam Brown

Keokuk, Iowa *Sparrow Shirt Co*

The shirt company may take this bill of exchange and sell it to a local bank at a discount representing one month's interest charges The local bank will send the bill to a bank in Keokuk which will present the bill to Sam Brown Thirty days later, Sam Brown will pay the Keokuk bank and the bank will repay the local bank in the same manner as if a check had been drawn by Sam Brown on the Keokuk bank and had been cashed or deposited at the Troy bank by the shirt company (that is, through the clearinghouse system)

When the seller of goods does not trust the buyer even to make payment upon the receipt of the goods, a *sight bill of exchange* may be used as a way of selling the goods C O D The only difference in form of the sight bill from the one illustrated is that whereas the time bill reads "thirty days after date," the sight bill would read "at sight pay to the order of " If a sight bill were used in our example above, it would be sent to the Keokuk bank together with the railroad's bill of lading for the goods Sam Brown would have to pay the bill of exchange at the Keokuk bank before the bank would give him the bill of lading to get the goods out of the freight station In both of these cases, the bank in the buyer's town acts as a collection agent for the bill of exchange If both the bank in the seller's town and the bank in the buyer's town are parties to the Federal Reserve agreement to remit at par, there will be no charge between the banks for this collection service, the bill of exchange being treated just as another item for collection similar to a check If they are not both members, there will be a small *exchange charge* for handling the collection item Whatever the banks charge their customers for this service is a matter for agreement between the bank and each customer

Foreign Bills of Exchange

The most important difference between a foreign bill of exchange and a domestic bill is that the foreign bill is payable in the money of the foreign country We might briefly define a foreign bill of exchange as *an order to pay money, drawn against a foreigner, payable in the foreigner's money, and payable in his country* Aside from the difference in the name of the person against whom the bill is drawn, the only difference in the form of a foreign bill of exchange from the one we have pictured above would be that if the bill were drawn against an Englishman, the amount would be stated in *pounds* instead of *dollars,* against a Frenchman the amount would be stated in *francs,* against a German in *marks,* and so on.

The reader will keep his reasoning about this subject clear if he always thinks of foreign exchange as *orders to pay* foreign money and *not* as the foreign money itself In the financial page of the newspaper such headlines as "Foreign Money," "English Money," and so forth are really misstatements for the sake of brevity The rates which are quoted below these heads are prices, not of foreign money, but of foreign bills of exchange The actual money of a foreign country might be bought and sold in this country, in fact, some small amount of it is regularly bought and sold For the purpose of making or receiving foreign payments, however, foreign bills of exchange are far more convenient and less expensive than the use of the actual foreign money For instance, to pay a debt to an Englishman by buying English paper money in this country and sending the money to him would mean that I would have to buy the English money about a week in advance of the due date of the debt in order to ship the money by steamer Thus, I would lose the interest on the money for that length of time Furthermore, I would have to take out an insurance policy to protect me against the loss or theft of the money while in transit Similarly, if I wish to travel in England, it would be better for me to buy a *letter of credit* (a form of bill of exchange) than to buy English money here to take with me If the letter of credit is lost or stolen, I can have the bank which sold it to me give me a duplicate letter, since it is payable to me alone But if I have English bank notes in my possession and they should be lost, stolen, or burned, I simply lose the money

We are now prepared to examine the mechanism by which bills of exchange are used in making and receiving foreign payments We can approach the subject best by means of a simple example Let us suppose that the American Electric Company has sold a dynamo to Robert White, an Englishman, for 1,000 English pounds Let us also suppose that the Atlantic Cigar Stores, Incorporated, has bought a shipment of pipes from Alfred Dunthorn of London and agreed to pay 1,000 pounds for them The American Electric Company has a claim payable in English money but would rather be paid in American money so that it can spend the money here The Atlantic Cigar Stores has the American money with which to pay its debt, but Alfred Dunthorn insists on being paid in English money How will these two payments take place?

The American Electric Company may draw a bill of exchange for 1,000 pounds against its debtor, Robert White The bill of exchange may now be sold to the Atlantic Cigar Stores for an agreed price, say $4,000 00 (the American Electric Company has thus received payment in American money for its claim) The Atlantic Cigar Stores sends the bill of exchange to Alfred Dunthorn Alfred Dunthorn will then present the bill of exchange to Robert White and demand that White pay the 1,000 pounds called for in the bill (thus Dunthorn's claim is paid in English money)

This means of handling the transaction has caused the American debtor to pay the American creditor and has caused the English debtor to pay the English creditor Both debtors have paid their bills in the money of their own country Both creditors have received payment in the money of their own country. *No money has had to cross the ocean either way*

The Rate of Exchange

The rate of exchange may be defined as the price paid for bills of exchange This price is usually expressed, however, not as a price for the bill itself but as a price (quoted in domestic money) per unit of the foreign money in which the bill is drawn In our example above, when $4,000 00 was paid for an English bill of exchange of 1,000 pounds, the rate of exchange was $4 00 per English pound

This rate of exchange is a market price determined by demand for and supply of bills of exchange in exactly the same fashion in which the price of wheat, for example, is determined by supply and demand All that we have said in Chapter IX about an increase in demand tending to raise the price and about an increase in supply tending to cause the price to fall, applies to the price called a rate of exchange just as it does to other prices The reason for making a separate study of this price of exchange is that the conditions which govern demand for bills of exchange and the conditions which give rise to their supply are considerably different from those which prevail in the markets for goods

As a guide to clear thinking in the more complicated ramifications of the subject, the reader should keep two rules in mind (1) *Any transaction which necessitates receiving a payment from a foreign country will tend to increase the supply of bills of exchange on that country, thus tending to lower that country's rate of exchange in our exchange market* If I wish to collect a debt from a foreigner, I draw a bill of exchange on him and attempt to sell it here My effort to sell the bill in competition with sellers of other bills of exchange will tend to force the price down. (2) *Any transaction which necessitates making a payment to a foreign country will tend to increase the demand for bills of exchange on that country, thus tending to raise that country's rate of exchange in our exchange market* If I wish to pay a debt to a foreigner, I attempt to buy a bill of exchange drawn on someone in his country My demand added to that of others trying to buy those bills will tend to raise the rate

The reader will also save himself confusion if he confines his attention to the foreign exchange market *in one country* and does not try to jump back and forth from one country to the other This may safely be done, since the rate of exchange of a foreign country in our market is simply the reciprocal of our rate of exchange in their market That is, if American debtors are offering *more* dollars and cents per pounds for English exchange, it will be found that in the

London foreign exchange market English debtors are offering *fewer* pounds per dollar for American exchange in exactly the same ratio

Some of the commoner types of transactions which will necessitate payments being received from foreigners are export of goods to foreign countries, expenditures of foreign tourists in this country, sales of coal and other ship supplies to foreign ships in domestic ports, purchase by foreigners of American stocks and bonds, sale by Americans (in the foreign markets) of foreign securities previously purchased, and interest and principal repayments on foreign debts to this country

Some of the transactions which will necessitate the making of payments to foreigners are imports of foreign goods, payment for freight on American goods carried in foreign ships, American tourist expenditures abroad, payment for insurance policies issued by foreign companies (for example, Lloyds), remittances by immigrants to their relatives abroad, purchase by Americans of foreign securities, the sale in this country of American securities previously purchased by foreigners, and payment of interest and dividends to foreign holders of American securities

While we have listed the transactions in these two groups as necessitating either the receipt or the making of payments, the first group will not add to the *present* supply of bills of exchange unless Americans attempt to convert their foreign claims into American money *immediately* The second group will not increase the *present* demand for bills of exchange unless Americans attempt to pay their foreign debts *immediately* Americans may *postpone* the conversion of their claims into American money by collecting their claims in the foreign country and reinvesting the money in the foreign country Foreigners may postpone the conversion of their claims by requesting the American debtor to deposit the money to their credit in an American bank, instead of sending a bill of exchange to them However, unless such investments are maintained *permanently,* the claims will have to be converted eventually into the domestic country's money, meanwhile, the amount of the claim will have increased by the amount of interest on the investment

Gold Settlements

To the extent that conversion of claims is not postponed by reinvestment, the difference between the total claims in favor of a country and the total claims against it will have to be paid in gold When a country refuses to allow the export of gold, those who have claims in terms of that country's money have no alternative except to sell their claims at the present low exchange rate of that country or to reinvest them in the hope of a more favorable exchange rate in the future This may serve to prevent the sale of large quantities of goods to the defaulting country, since sellers know that they will have to accept payment in depreciated exchange Eventually this may help to turn the balance of payments the other way, but it will be a long and painful process

Notice that we have said that the difference between the *total* claims in favor of a country and the *total* claims against it will have to be paid in gold By these totals we mean the total *due from all other countries* and the total due *to all other countries* It is not necessary that a country's balance of payments be equal with each other country, or with any one country in order to avoid payment in gold For example, as a result of large purchases of coffee the United States may owe more to Brazil than Brazil owes to the United States At the same time England may owe more to the United States than we owe to them, because we have sold them automobiles and wheat Brazilians may owe a net balance to England, because they have bought English cloth. Under these circumstances, instead of sending gold to Brazil we may send the English bills of exchange drawn against the automobile and wheat customers Brazilians will be glad to obtain these bills of exchange, since they have to make a payment to England for the cloth, and they can use the bills to make this payment Thus we have a three-cornered cancellation of debts instead of the two-way cancellation which we had in our illustration of the American Electric Company and the others

The Gold Points

When gold does have to be exported in payment for foreign balances, or imported in payment of balances in our favor, it is usually not the government but rather private individuals and banks which do the exporting and importing We must now examine how and why these gold movements take place When two countries are on the gold standard, the monetary unit of each is expressed as a certain number of grains of fine gold, and all legal money of the country becomes redeemable in this number of grains of gold per unit The ratio of the gold content of the two monetary units is called the *mint par of exchange* Before the First World War, a British gold sovereign contained 113 00117 grains of fine gold, and the American gold dollar contained 23 22 grains of fine gold The sovereign thus contained 4 8665 times as much gold as an American dollar, so that the mint par of exchange was $4 8665 per pound sterling This would mean that any American who had a debt of one pound due from an Englishman could collect the debt in English money, redeem the English money in gold at the Bank of England, bring the gold over here, and have a quantity of gold for which the United States Mint would be willing to pay him $4 8665 The only disadvantage the American would encounter in collecting his debt in this fashion, rather than by selling a bill of exchange, would be the cost of transportation of the gold, insurance on it while in transit, and loss of interest for the length of time it takes the gold to reach this country. On very small debts these charges might be high enough so that this means of collection would be avoided whenever possible. On a debt of 1,000 pounds, in ordinary times, the cost of importing the gold might be $20.00 (at the rate of 2c for each pound of the debt). As long as gold redemption is allowed by England and freight rates and insurance charges remain the same, this transportation cost sets the lower limit to which the rate of exchange may fall. To find the amount of American money which the creditor will have after collecting the debt in gold and paying the costs of collection, we deduct 2c from the mint par of exchange ($4.8665), leaving $4.8465. This is the *lower gold point*. Those with claims against Englishmen could realize $4.8465 per pound by collecting their claims in gold. Therefore, they would not sell bills of exchange at any rate below that figure. When the rate would drop to that figure, gold would start flowing into this country from England.

The *upper gold point* was determined in an analogous manner. Americans with English debts to pay could redeem their American money in gold, send it to England, and receive from the Bank of England one English pound for each $4.8665 worth of the gold. If it cost 2c per pound to ship the gold, then a debt could be paid at a total cost of 2c plus the mint par of exchange, or a total of $4.8865. This would be the top price which American debtors would be willing to pay for English bills of exchange, since at any rate of exchange higher than $4.8865 it would be cheaper for them to pay in gold. This, then is the *upper gold point*. With the given conditions (that is, both countries on the gold standard, a mint par of exchange of $4.8665, and a cost of shipment of 2c per pound sterling), when the rate charged for bills of exchange reached this figure, gold would start to flow from America to England.

When two countries are on a full gold standard, the gold points set the limits between which the rate of exchange may fluctuate This sets limits to the amount of possible losses in foreign trade through exchange fluctuations If the par and the gold points were as given above and an exporter encountered the worst possible circumstances, that is, if he quoted a price to an Englishman when the rate was at the upper gold point ($4 8865) expecting to sell a bill of exchange at that price and then found when the time came for him to draw the bill and sell it that the rate was at the lower gold point ($4 8465), his total loss through exchange fluctuation would be 4c per pound sterling, only 0 81 per cent If he had quoted his price to the Englishman on the expectation that the rate would drop to par, his loss would have been only half as much (2c per pound or 0 405 per cent)

Dislocated Currencies

When countries go off the gold standard, these limits to the fluctuation of exchange rates set by the gold points are destroyed, there is no absolute limit except zero to which the rate of exchange may fall, and no absolute limit above which it may not rise There are, however, certain corrective tendencies which may assert themselves within rather wide and indefinite limits as a country's exchange rate rises or falls For example, suppose both England and the United States are off the gold standard, gold shipments being prohibited, and the rate of English exchange in America drops from $5 00 to $3 00 per pound This would mean that Dunhill pipes, selling for one pound in England, could now be bought for $3 00 instead of $5 00 in our money All other English goods, whose price in English money remained unchanged, would likewise be selling in America for three fifths of their former price in terms of American money We might thus be induced to buy many more English goods than before, and the increased demand for bills of exchange to pay for the goods would tend to force the rate of exchange upward again If the $3 00 rate was expected to rise again, speculators might also enter the market and buy up bills of exchange in the hope of reselling them at a higher price To the extent that they do so, their action will tend to cause the rate to rise more rapidly than it would as a result of the purchases of goods alone

Note, however, that this increased demand for English bills of exchange is contingent upon the condition that the domestic prices of English goods *do not rise* by an amount which will offset the difference in the exchange rate For instance, if Dunhill sets the price of a pipe at two pounds, even though the rate of exchange is $3 00, this will mean that Dunhill pipes now cost $6 00 in American money Therefore, *fewer* of them would be bought than were bought when the English price of the pipes was one pound and the rate of exchange $5 00 Consequently, if the prices of other English goods also rose, the demand for bills of exchange would be still *less* than before, and the rate of exchange would fall still lower One cause which would bring about such a rise in English prices might be an expansion of the amount of money in England

Furthermore, when a rate of exchange is falling, if prospective buyers of the country's goods believe that the rate will fall still further, they will do well to wait until the lowest rate is reached in order to obtain the goods at the lowest possible price in terms of American money Speculators, likewise, will do well to wait for the lowest price of bills of exchange in order to resell them at the greatest possible profit when the rate does rise If we knew that England was continuing to inflate her currency, for instance, this would be a fairly good indication that the rate of exchange was going to fall still further and a warning to refrain from buying for the time being Those who bought German marks during the German inflation were either displaying their ignorance of economics or gambling that the German government would reverse its policy and start to contract its currency

Automatic Corrective of the Gold Movement

In contrast to the above haphazard situation, when two countries are on a working gold standard, not only do the gold points set limits between which the rate of exchange may fluctuate, but also the very movement of the gold itself tends to set in operation the tendencies to reverse the balance of payments which caused the exchange rate to reach the gold point. For example, if England and America are both on the gold standard and the rate of English exchange in America rises to the upper gold point, we have shown how this will cause gold to flow from America to England. The withdrawal of gold will decrease the reserves of the American banking system. The American banks will then contract the amount of deposit credit they are extending in order to maintain their former reserve ratios. This will cause American prices to fall. In England, a contrary action is taking place. Gold is flowing in, British bank reserve ratios are going up and British banks are in a position to extend more deposit credit. The increased credit will cause English prices to rise. Thus, American prices are low, English prices are high. As a result, more American goods will be bought by Englishmen and fewer English goods will be bought by Americans. The supply of English bills of exchange will increase, and the demand for them will decrease. The lower gold point will be reached, gold will flow back again.

Notice that we have said that the two countries must be on a *working* gold standard. This means that they are following what are called "the rules of the game," namely: (1) a country which *loses* gold must *contract* its currency; (2) a country which *receives* gold must *expand* its currency. (Either of these alone would accomplish the reversal of the gold movement, but if the receiving country does not expand currency, the country which loses the gold would have to contract its currency by a greater amount. Or, if the country which loses the gold does not contract currency, the receiving country would have to expand its currency by a greater amount to cause the gold to flow out again Less dislocation of domestic prices is necessary if both countries follow the rules) (3) The country which receives gold must not impose new tariffs on the other country's goods or the expansion and/or contraction in the currencies will have to be just that much greater to offset the influence of the tariff on relative prices in the two countries

Foreign Exchange Banks

To keep our explanation as simple as possible we have deliberately avoided introducing the activities of bank dealings in foreign exchange If we have the principles of foreign exchange in mind, we may now proceed to examine the role played by banks In our previous illustration of payment by a bill of exchange, the debt collectable by the American Electric Company and the debt payable by the Atlantic Cigar Stores happened to be for the same amount, 1,000 pounds In actual practice this would seldom be the case Both debts would be more likely a different odd number of pounds, shillings, and pence, so that both debts could not be exactly cancelled by this one bill of exchange

Here is where the banks step into the picture They make a regular practice of buying bills of exchange from the exporters These bills are sent to England and collected in English money The English money is then deposited to the credit of the American bank in the form of a checking deposit in some English bank The American bank can now write checks against the English bank for any desired specific amount of pounds, shillings, and pence These checks are called *bankers' bills of exchange* The American who used to pay a debt in England might buy one of these checks or bills made out in the exact amount of his debt and send it in payment to his English creditor

Because there was less likelihood of a bill of exchange drawn against an English bank not being paid than there would be in the case of a bill drawn against a private individual, and because of the superior convenience of bills drawn in any desired amount, the banks were able to sell bills of exchange at a slightly higher rate (usually a small fraction of a cent) than the rate at which they bought them, thus making a profit Although the difference between the buying and the selling rates is small per pound, when it is realized that some bills call for the payment of thousands or millions of pounds, we see that the total profit per transaction may be large The banks can also attempt to profit by speculating in foreign exchange, that is, by buying up bills in excess of the amount that they currently sell in the hope that when the rate goes up they will be able to sell out at the higher figure But a bank that wishes to avoid both speculative profits and speculative losses will attempt to keep its purchases and sales of bills as nearly even as possible

The banks also have such an advantage over private individuals in the shipment of gold that most shipments are made by banks Shipping in larger quantities gives them lower shipping costs per unit of foreign currency Moreover, they can sell a bill of exchange and then ship the gold to be deposited for redemption in the English bank by the same steamer on which the bill of exchange travels Thus, they lose no interest on the gold while in transit, because they have already sold a bill of exchange to get their money back It will be found, then, that when the rate of exchange is at the upper gold point people are still buying bankers' bills of exchange and the banks are shipping gold

Exchange Controls

Practically all the previous discussion that was based on a working gold standard in foreign exchange is now ancient history From the second time that England left the gold standard until the beginning of hostilities, England, the United States, and France had a foreign exchange stabilization agreement which operated for a considerable time almost as satisfactorily as a gold standard and might have been fully as efficient if the conditions of international trade had been more normal Under this agreement each of the countries had an exchange stabilization agency which was empowered to buy and sell the foreign exchange of the other two countries and was entrusted with funds for this purpose The object was to keep the rates of exchange within the narrowest limits possible For example, whenever the American rate of exchange in London fell below a certain point, the Bank of England bought dollar exchange, and whenever the rate rose above a certain point, the bank sold exchange As long as the amounts offered for sale equalled the amounts purchased at the rates set by the control authority, no further action was necessary In seasonal and short-time movements, any excess amounts offered for sale were purchased by the bank and any excess amounts demanded were sold by the bank from its stock of dollar exchange on hand, or, if it had no such stock, it drew on its balance in the American exchange stabilization fund The apparent success of the scheme must have been due to very good judgment in "pegging" the rates between which the exchange was allowed to fluctuate very close to the "purchasing power parity" between the two countries

Exchange Rationing

Argentina and some other countries which used to have heavy export balances to Europe and heavy import balances from the United States adopted the system of exchange rationing Under this system all foreign exchange was turned over to the government, and importers in Argentina were allowed to have only that amount for payments to each particular country which that country had spent in buying goods from Argentina This system was particularly irksome to purchasers of North American goods but, since we were not interested in accepting German blocked marks, it was apparently the easiest way for Argentina to conserve her reserves until we began lending to her through the Import-Export Bank

Barter Deals

Barter deals were first adopted by Germany to take advantage of the exchange shortage of various countries which resulted from the American tariff policy and British Empire preference These deals were a straight exchange of goods for goods and hence involved no financing We ourselves took advantage of one such deal by bartering cotton with Britain for rubber

These various methods of trading have shown us that it is not at all impossible to conduct some form of international trade between countries which are not on a gold standard The chief difficulties seem to lie in the restriction of three-cornered trade, and these may be due at least in part to shipping difficulties and war conditions

CHAPTER XXXIV

International Economic Policy[1]

BEFORE we can discuss international economic policy we must have in mind some standard of what constitutes national well-being. In these times of depression-warped thinking, it is necessary to reiterate so simple and obvious a truth that the wealth of any country increases only as the quantity of goods which it possesses. The debts which are owed to us by foreigners can be added to this total only to the extent that they can be converted into foreign goods which may be consumed by our people.

We tend to confuse ourselves by thinking of national wealth and national income in the same terms we use for the short-cut calculation of the wealth or income of an individual, that is, in terms of money. When we speak of a man with $1,000,000 in the bank or invested in bonds, we consider him as very well-to-do. In reality this consideration rests upon the knowledge we have of the goods that one million dollars will buy at present prices. If, however, goods were so scarce (or dollars so plentiful) that a cup of coffee sold for $10,000 and a piece of pie for $20,000, we would regard our millionaire as a poor man. The same short-cut thinking exists with respect to changes in wealth. If a grocer buys a stock of goods for

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[1] This chapter is based primarily on Haberler, Gottfried, *Principles of International Trade,* The Macmillan Co., New York, 1936, Williams, John H., "The Adequacy of Existing Currency Mechanisms," *American Economic Review,* March 1937, pp. 151 ff., and the teachings of Professor Machlup.

$500 and then sells them for $1,000, we consider that he has done very well for himself If immediately after he received payment, however, the government should happen to repudiate its currency, his $1,000 will be worthless and he will be regretting that he did not keep his groceries for himself to eat or to barter for shoes and clothes

We can keep our thinking clearer on the subject of foreign trade if we will occasionally have reference to what Professor Taussig has called "the barter terms of trade" We may then see readily that if, in exchange for an export of 10,000 automobiles, we receive 1,000,000 pounds of coffee or 1,000,000 pounds of rubber, we are much better off than if we received only 500,000 pounds of these articles The lower the price of foreign goods (in comparison with our own cost of production for the same product), the greater will be our gain from foreign trade If as a nation we had the economic intelligence of a six-year-old child (who always likes to get more candy for his penny), we would welcome an influx of "low-priced foreign goods" instead of holding up our hands in horror and slapping on tariffs whenever this occurs

"Buy American"

In these days of economic maladjustment, certain people who are honestly ignorant and others who are attempting to bolster markets for their own overpriced goods are attempting, in every country, to make capital of the slogans, "Buy American," "Buy British," "Buy Italian," and so on The appeal is to "Keep your money at home" and to "Employ your own workmen" The spread of this idea may eventually lead people to see the absurdity of its own logical conclusion· "Buy in your own State," "Buy in your home town," "Buy in your local neighborhood" The logical end would be, "Don't buy from anybody but yourself" Those who insist that keeping out foreign goods is the way to employ Amer-

Even though perfect self-sufficiency is an impossibility, intensive efforts towards even partial self-sufficiency may be contributing causes to world economic depression and possibly to war itself As a result of the First World War and the postwar tariffs we have made ourselves independent of the German chemical and optical instrument industries Our curtailment or cessation of these and other imports from Germany helped to deprive the Germans of the purchasing power with which they formerly bought from us 300 million pounds of pork products, 200 million pounds of tobacco, 2 million bales of cotton, 80 million pounds of dried fruits, 40 million pounds of rice, and large quantities of other products Thus, we have contributed, at least in a small way, to the distressed conditions in Germany, which in their eruption spewed Hitler into power

The Balance of Trade

In the long run, the value of a country's exports to the rest of the world must be equal to its imports from the rest of the world It must be remembered that exports and imports include not only physical goods but also the so-called "invisible items" in the balance of trade that is, shipping and insurance services performed by foreigners (or by us for foreigners), tourist expenditures, immigrant remittances to relatives in the home country, and similar items For gold-producing countries, gold itself may be considered simply as one commodity exported

Note that the only balance which has any significance is the balance between one country and *all other countries,* to compare the balance of trade between any two countries is an idle statistical trick, utterly without meaning We may regularly import a greater value of goods from England than we export to her, at the same time, however, our exports to Canada exceed our Canadian imports, while simultaneously, Canadian exports to England exceed Canadian imports from England To look simply at the "balance" with England and to say that because it is "unfavorable" we must take measures to import less from England, is to ignore the fact that this would be the simplest and surest way to destroy Canadian purchasing power and so to reduce our exports to Canada A retail coal dealer always has an "unfavorable" balance of trade with the mineowner from whom he buys his coal, whereas he always has a "favorable" balance of trade with his retail customers He would be properly contemptuous if told that it was wrong for him to buy more coal from the mineowner than he sold to him It would not be necessary for us to belabor this obvious truth were it not for the fact that the spread of "bilateralism" is evidence that those entrusted with the foreign trade policy of various nations are apparently still ignorant of it

Purchasing Power Parity

We are all familiar with the fact that the price of a transportable commodity in New York cannot for any great length of time exceed the price of the same commodity in Chicago by more than the cost of transportation Exactly the same situation exists between two different countries Where a tariff is in existence we may consider it simply as a part of the transportation cost Only one more factor need be introduced In order to compare a foreign price with a domestic price we must *translate* the foreign price into terms of our own money To do this we multiply the foreign price by the rate of exchange

Whenever the foreign price of a commodity, plus transportation costs, is lower than the domestic price, the commodity will tend to be imported Whenever the domestic price of a commodity, plus transportation costs, is lower than the foreign price, the commodity will tend to be exported Transportation costs may be higher in one direction than in the other, particularly if one country has a duty on the commodity and the other has not, or if one country's duty is higher than the other Also, if the general volume of traffic happens to be greater in one direction than it is in the other, transportation companies may offer lower freight rates on "return loads" We may readily see that each commodity has an "export point" and an "import point"

In its simplest form the above reasoning applies only to those commodities that may be transported easily Some writers on international trade have laid great stress on the difference between what they call "international commodities" and "domestic commodities" According to them, international commodities are those which may be shipped easily from one country to another They would classify as domestic commodities houses, hotels, personal services, and any goods or services whose nature requires that they be used in the place where they are located To this group some authors would add those goods whose shipping costs are so high that they are not ordinarily transported for any great distance (obviously this is a mere difference of degree and the distinction loses most of its force between two markets in different countries which happen to be just across the border from each other)

Further reflection will show that this distinction between so-called domestic and international commodities does not introduce as much qualification to our doctrine as would appear offhand, even in the case of goods which are physically incapable of transport The distinction has force only when one, or a very few, of the so-called domestic goods are differently priced in different countries Houses may be incapable of movement, but let any considerable number of the prices which make up the "cost of living" be much lower in one country than in another and *people can and do move* temporarily or semi-permanently to take advantage of the difference

One of the best examples of this occurred when the Canadian rate of exchange was such that an American dollar was worth $1 20 in Canadian money Since Canadian prices had not risen, this was roughly equivalent to a 20 per cent lower cost of living in Canada Large numbers of workmen from Buffalo, New York, rented homes in Fort Erie, Ontario, just across the river and drove back and forth across the bridge to their work in Buffalo

In cases such as this, the significant factor which must be overbalanced by the price difference is not the cost of transportation of goods but the cost of transportation of people In the above example the cost was extremely low, being merely the toll on the Peace Bridge (in many cases the distance traveled to work was actually less than before) Even where the two countries are separated by a long ocean voyage, the principle is still applicable Low living costs in a foreign country will tend to induce more tourist travel and, perhaps even more important, will tend to induce those who intended to travel anyway to prolong their trip and thus to consume more of the low-priced goods and services Meanwhile, apartment and hotel owners in the tourists' home country, confronted with vacancies, will tend to lower their high rents and the difference in living costs narrows or disappears

We can readily see then that, if we are concerned with differences in prices of any large number of commodities, such as might be occasioned by exchange rates or the currency policy of one country or another, the distinction between domestic and international commodities is without much meaning We can, perhaps, raise the presumption that the so-called international commodities will respond more rapidly to price differences (greater than the cost of transportation) than will the so-called domestic commodities

There are a few ways in which a country can divorce or partially isolate its own price system from that of the rest of the world (1) by an absolute prohibition of imports plus a law forbidding its citizens to leave the country (this would soon result in zero exports), (2) by duties which are prohibitive, not merely "protective" This will be effective only so long as prices do not diverge from foreign prices by more than the amount of the duty and other transport costs To be thoroughly effective this method would also require prohibition of foreign travel, (3) by a system of import quotas This is a partial method The closer the quota approaches the amount which would be imported in a free market, the less will be the amount of divergence between domestic and foreign price, (4) by "rationing" foreign exchange This has much the same effect as import quotas We shall have occasion to discuss some of these schemes later At present it is sufficient for us to note that, even if complete purchasing power parity is not always actually in effect, it requires very drastic measures to prevent the prices in one country from influencing those in another

Price Stability versus Exchange Stability

In the field of domestic and international currency either the government or the banking system must adopt a policy. The government either regulates the quantity of money itself, or allows the banks to do so, or lays down regulations which will govern the quantity of currency that the banks may issue under various circumstances Changes in the quantity of money are extremely important in causing changes in domestic prices, in exchange rates, and in the volume of imports and exports[*]

There is considerable difference of opinion among economists as to whether a "stable price level" is a desirable or even a possible means of increasing the stability of the economic system in general (assuming stability to be a desired end).

For the moment, let us sidestep this argument and assume that we are committed to a policy of trying to attain "price stability" We are immediately confronted with a dilemma "price stability," "exchange rate stability," and "stability of industrial output" are mutually contradictory in a country which maintains any commercial connections with the rest of the world

Let us see how this works Assume that two countries which are trading with each other make no attempt to regulate their domestic prices and that the only material banking regulation is that the banks in each country are required to maintain a specified minimum reserve ratio against their deposits What follows is equally applicable whether both countries are on a gold standard, both on a paper standard, or one on a gold and the other on a paper standard Assume now that country *A* has a balance of payments[2] flowing to it from country *B* (perhaps because *A*'s exports to *B* exceed its imports, or because the people in *B* are buying securities on the stock exchange in *A*, or for any other reason)

In this situation there will be an amount of bills of exchange[3] drawn on people in country *B* and offered for sale in *A* which exceeds the amount of the requirements of people in *A* who have payments to make to *B* The banks in *A* will buy this surplus foreign exchange, thus putting more money (usually created deposit credit) into circulation in *A*. In consequence, prices in *A* will start to rise Since the supply of foreign exchange is a temporary surplus which the banks will have to hold as a balance in a foreign bank until they can resell it, they will not be willing to pay as high a price for bills of exchange as they would at a time when foreign payments and receipts were equal In other words, the rate of exchange falls somewhat.

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[2] See Ch XXXIII

[3] *Ibid*

What is happening in country *B* at the same time? The bills of exchange are sent over to the banks in *B* for collection and deposit to the credit of the *A* banks, that is, individual deposits belonging to people in *B* are reduced and deposits to the credit of the *A* banks are increased. But since the banks in *A* have bought more bills of exchange than they have sold, this excess will not be drawn upon and will become an idle deposit. Thus idle bank deposits have replaced some active bank deposits in *B,* and we may say that the velocity of circulation of money has decreased, or that money previously in circulation has been absorbed into idle cash balances. The decreased effective quantity of money in *B* will tend to cause prices to fall.

Thus we have three factors at work: (1) higher prices in *A,* (2) lower prices in *B,* and (3) a lower price of *B*'s money in terms of *A*'s money (that is, a lower exchange rate). All three of these operate to cause people in *A* to buy more goods from *B* (or to spend their vacations in *B*). At the same time, since money in *B* will buy much more at home than it will abroad, people in *B* will tend to buy more home-produced and less foreign goods, thus decreasing imports.

If no other conditions are changed, increased demand for *B*'s goods will cause prices in *B* to rise, decreased demand for *A*'s goods will cause prices in *A* to fall, and increased demand for bills of exchange in *A* (to pay for increased imports from *B*) will cause the rate of exchange to rise again. These forces will continue to operate until the balance of payments is equal and purchasing power parity is regained.

We see that the "impact" of the fluctuation has been "split three ways." Prices in *A* have fluctuated a little, prices in *B* have fluctuated a little, the exchange rate has fluctuated somewhat. Notice that the word "gold" has not been mentioned in our explanation. The process that was outlined could have taken place without an ounce of gold in existence This is what may happen when two countries on the paper standard follow "the rules of the game"

Now let us suppose that, instead of the above situation, the authorities in country *A* decide that it is desirable to have a "stable price level" They would regard the influx of payments from *B* with alarm and attempt to prevent its influence in causing prices to rise This might be done by (1) raising the discount rate (this tends to make it less attractive for businessmen to borrow from the banks and so results in less creation of deposits), (2) raising the reserve ratio required for banks (if the actual ratio is about equal to the new legal ratio, this prevents any further expansion of deposits), (3) selling government bonds in the open market in an amount equal to the payments from *B* and holding the money received from the sale as an idle balance (these practices are sometimes called "sterilization" of capital imports although the term is used more often in connection with gold imports)

The failure of prices to rise in *A* means that this source of increased demand for imports (and restraint on exports) is not present as it was in the first situation discussed This means that the rate of exchange will have to fall further and/or the prices in *B* will have to fall further in order to bring about the increased imports to *A* and the decreased exports from *A* which is necessary to equalize the balance of payments Thus the "stable price level" in *A* is achieved at the expense of *greater fluctuation* in the exchange rates and in *B*'s price level

A further complication may be noted If the restrictive measures adopted to bring about "stabilization" in *A* have the effect (as they may easily have) of raising the interest rate in *A* above that prevailing in *B*, this will tend to attract short-term capital from *B* to *A* thus increasing the flow of "hot money"[4] which *A* must "sterilize" in order to prevent a price rise If this happens, the fall in the exchange rate and/or in *B*'s prices which is necessary to equalize the balance of payments will be still greater

Now let us suppose that, instead of *A*, it is country *B* (the country making the payment) which has a price stabilization policy We remember that, according to the "rules of the game," *B*'s currency should contract and its prices fall in order to restore the balance of payments Under a stabilization policy, however, the monetary authorities would attempt to prevent this fall in prices and would deliberately expand the amount of money in circulation The methods might be (1) lowering the discount rate, (2) lowering reserve requirements, (3) purchasing government bonds in the open market, (4) issuing new paper money

To the extent that the price decline is prevented, this source of stimulus to exports and discouragement of imports will not be present as it would be if *B* followed the "rules of the game" Consequently, it will be necessary for the exchange rate to fall still lower and/or the price level in *A* to rise still higher if the balance of payments is to be restored Under these circumstances, a "stable" domestic price level in *B* is really "inflationary" when the international situation is considered

Another complicating circumstance may be noted Under our "rules," a country that is making greater foreign payments than it receives should contract its currency circulation This (particularly if the discount rate is raised) will tend to cause a rise in the market rate of interest Ordinarily, this will tend to be an inducement to the investment of funds by foreigners and the movement of these funds will contribute a part toward the restoration of the balance of payments Just the reverse may occur if the country expands its currency when our "rules" require currency contraction If people begin to fear that the expansion is a prelude to further inflation, there may be a "flight of capital" from the country Under such circumstances we may say that the "money flows up hill" (that is, it flows in a direction opposite to that indicated by the longer trend), and temporarily the adverse balance of payments is increased (Widespread misunderstanding has prevailed on this point Even some finance ministers have argued that their inflation was occasioned by an "unfavorable" balance of payments, failing to see that the inflation itself was the prime cause of the continuing adverse balance)

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[4] Imports of short term capital which may cause inflation and then be withdrawn causing deflation

If *both* country *A* and country *B* are following a policy of domestic price stabilization, the full burden of correcting the balance of payments will fall upon the exchange rate In consequence, the exchange rate must fall extremely low It is quite probable that the rate may fall temporarily to a point far below that necessary to restore the balance In our case (page 636) the banks in *A* were quite willing to buy exchange on *B* at rates only slightly lower than those previously prevailing, because they knew that two powerful factors (*A*'s price rise and *B*'s price decline) were operating to increase the future demand for foreign exchange When the rate of exchange itself is the only factor which may be expected to cause increased imports to *A,* however, the banks either will not buy foreign exchange at all or they will buy only at rates so low that they feel assured they will not lose in carrying foreign balances for a long time

Violently fluctuating exchange rates make it extremely difficult to carry on *both* import and export business It becomes unwise to make commitments in terms of foreign currency even for the length of time required to ship goods, to say nothing of the time required to manufacture them The export industries may then suffer from a severe amount of unemployment which will have an adverse effect on general business conditions throughout the country

Exchange Stabilization

Now let us consider a situation in which neither country is attempting domestic price stabilization, but instead the exchange rate is held rigidly at a fixed point This was roughly the case in prewar times between two countries on a full gold standard[5] It is a mistake to say that the rate of exchange did not fluctuate in those times, it did fluctuate, but only within the relatively narrow limits set by the gold points A fluctuation of 4 cents in the dollar-sterling rate of exchange, for example, amounted to only about one per cent in the value of the pound

Where rigid, or very narrowly fluctuating, exchange rates prevail, the full burden of corrective action must be borne by the price structures of the different countries It is also urged by some writers that stable exchange rates tend to bring about the result that inflation or deflation in one country becomes "internationally contagious" and spreads to other countries In general, it may be said that it is difficult to see how any country can reap the advantages of international trade without being subject, at least in some measure, to influences resulting from changing business conditions in the countries with which it trades We can still concede, however, that exchange rates which are allowed to find their own level, without active regulation by the monetary authorities, will result in less disturbance to *prices* in other countries resulting from inflation or deflation by any one country

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[5] See Ch XXXIII

Exchange Stabilization Plus Price Stabilization in Both Countries

Now let us assume that both *A* and *B* are following a policy of stabilizing their domestic price levels and also that the exchange is being "pegged" at a fixed rate Let us also assume that there is an excess flow of payments from *B* to *A*, due to the fact that the fixed prices in *B* are too high relatively to the fixed prices in *A* Note that the excess flow of payments will tend to continue so long as the prices in the two countries are "frozen" (stabilized) at their artificial levels There will be some difference in the mechanics, depending upon whether it is country *A* or country *B* which is exercising an active effort to peg the exchange rate

If country *A* pegs the rate, it will do so by buying bills of exchange on *B* at a price above that which would prevail in a free market. Bills of exchange will also be sold at the same fixed price Under our assumption of fixed price levels in the two countries (and with *B*'s prices too high relatively to *A*'s prices), the amount of bills of exchange which the *A* Government Exchange Stabilization Fund will have to purchase will always be in excess of the amount which can be sold at the pegged rate Thus the stabilization fund will be taking a steady loss on its transactions, a loss which can never be recovered until something is done to decrease exports from *A* and/or to increase imports from *B* That is, something must be done to increase the demand or to decrease the supply of bills of exchange One possibility suggests itself If *A* has had high tariffs, it may repeal or reduce them in order to encourage imports and so to stimulate the demand for exchange We must not ignore the other complicating circumstances which will be present Owing to *A*'s efforts to prevent a price rise, we have seen that the market rate of interest in *A* will tend to rise At the same time, due to the exchange control, a unit of *B*'s money will exchange for a greater number of units of *A*'s money for the purpose of investment in *A* than if the rate of exchange were allowed to seek its own level We thus have two influences, a higher interest rate and a higher exchange rate, both operating to cause capital movements from *B* to *A* This will increase tremendously the amount of surplus foreign exchange which the Stabilization Fund will have to buy Unless the Stabilization Fund is to go bankrupt, certain drastic measures, perhaps even in addition to tariff reductions, may be necessary, such as (1) a prohibitive tax on capital imports, and (2) a prohibition of exports, and (3) refusal to allow tourists from *B* to enter the country

Rather than adopt such drastic measures, country *A* would be quite likely to give up attempting to control domestic prices or to abandon exchange control, or to abandon both price control and exchange control Note, however, that during the time the controls are in effect, the artificial difference in prices may stimulate the export industries in *A* to expand to a point which cannot be maintained when controls are relaxed This expansion will tend to draw some resources away from their more usual employment in "domestic" industries Thus we can have unwise expansion and maladjusted production even with, or perhaps we should say because of, a stable price level

Now let us assume that it is *B* instead of *A* which is trying to control the exchange rate under the same circumstances (stable prices in both countries and an excess balance of payments from *B* to *A,* price level in *B* being held too high relatively to *A*'s price level) In country *B,* the pegged price of bills of exchange drawn against *A* will be below the price which would prevail in a free market The government will have to issue orders that all foreign exchange must be sold to the Stabilization Fund at the fixed price Since this price for bills will be below that which importers could obtain by selling the bills of exchange directly to importers, there will be many attempts to evade the regulation and even "Black Bourses" (bootleg exchange markets) may be set up Even more difficult to detect and stop will be the practice by exporters of collecting their debts in *A* and of investing the funds in *A* without resorting to exchange transactions To ensure that the total available supply of foreign exchange passes through the hands of the fund at the fixed price will require a thorough policing and espionage of everyone likely to have foreign exchange transactions (This is much the same as the situation which prevailed in Germany until the war Even if the exchange control authorities obtain possession of all available foreign exchange, they will not have enough to satisfy the needs of all those who would like to purchase exchange at the pegged rate Consequently the exchange will have to be rationed and each buyer given a quota which he may purchase[6] Since foreign sellers are not likely to be willing to give long term credits under these circumstances, rationing of exchange practically amounts to an import quota system At first the quota basis may be set up as a simple percentage of past exchange requirements This, however, will make a serious reduction in the imports of basic raw materials and the government will likely be driven into the practice of determining which imports are "essential" and which are "nonessential," exchange being issued only to importers of the "essential" goods The country will then have to produce for itself, at higher costs, many of the goods which it formerly imported Its resources will thus be economically misdirected Note that the two chief stimuli to exports (a falling price level and a rising foreign exchange rate) have been deliberately foregone as a matter of policy Consequently, the only hope of country *B* to restore the balance of payments is through reduced imports This means a lower standard of living for its people than would have prevailed had the exchange and price controls not been in effect

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[6] The success of the British Stabilization Fund without resort to quotas has been possible because the rate of exchange has *not* been pegged The policy of the Board has not been to prevent normal movements of the exchange rate but rather to try to offset erratic fluctuations due to speculation and temporary panic Even so, it was found necessary in May, 1939, to adopt the rather mild device of requesting British brokers not to quote prices on American securities

General Aspects of Stabilization

The more naive school of domestic price stabilizers is simply opposed to price declines and rather welcomes rises in the "general price level" The extreme form of this doctrine is found in the slogan, "Reflate prices to the 1926 level and then stabilize" More sophisticated advocates of stabilization are opposed to price rises, as well as price declines, from monetary causes, primarily because they believe that price rises induced by money and credit expansion are almost certain to result in drastic deflation Even though we hold the latter viewpoint, we may still raise the question whether all changes in the price level occasioned by changes in international payments are of the same nature as changes caused by either deliberate or uncontrolled monetary policy

First, let us drop the assumption of only two countries trading with each other This does no harm to any of the propositions we developed above When we are examining conditions in country *A,* we now substitute "the rest of the world" wherever we formerly mentioned country *B* Likewise, when we are examining conditions in *B,* "the rest of the world" becomes a synonym for country *A* Both countries are now selling to, buying from, and making and receiving payments from, many other countries Country *A* will now have an excess inflow of payments only when payments from the rest of the world exceed payments by *A* to the rest of the world Country *B* will have an excess outflow of payments only when payments to the rest of the world exceed payments from the rest of the world One important new circumstance is introduced Each country's exports are now selling *in competition* *with similar products of other countries,* except for those few products on which the country may have a monopoly

Now let us re-examine the situation in country *B* if it follows the rules of the game and allows its currency to contract and its prices to fall when it has an excess outflow of international payments This procedure means a fall in costs and a fall in prices for its export goods Since the country is in competition with other countries, we may raise the presumption that the elasticity of demand for most of its export goods is far greater than unity Thus the fall in prices relatively to those of other countries will result in a great increase in volume of sales of export goods (Other countries presumably will not be able to sell the same volume of goods at the lower prices as they formerly did because they have not had the *benefit* of a fall in costs due to a currency contraction) The expansion in the export industries will call for a greatly increased volume of employment in those industries This may not only offset other tendencies towards unemployment but, if the elasticity of demand for exports is great enough, it may re-employ many of those who previously happened to be out of work Thus the chief bogeyman (deflationary unemployment) feared by opponents of a falling price level is not present in this situation The beneficial effects of the falling price level may be seriously impaired, however, if the importing countries foolishly impose *new* higher tariffs in order to deprive themselves of the benefit of more goods at lower prices This points to one advantage of "trade agreements" which bind duties at existing rates, or at specified maximum rates

Now let us re-examine the situation in country *A,* assuming that it follows the rules of the game and allows its currency to expand when an excess inflow of foreign payments occurs The chief danger that the stabilizers foresee is a temporary over-expansion of domestic industry which cannot be maintained when the flow of excess payments ceases or is reversed We have seen that a simple attempt to prevent price rises may result in a continued inflow of foreign short-term investment funds The "undesirable" expansion could be avoided more easily if the expanded purchasing power were *directed* to the purchase of imported goods Insofar as the "new money" is spent for imported goods (a) no temporary rise in domestic prices will take place, and (b) the balance of payments will tend to be restored by the increased demand for foreign exchange The most appropriate means of accomplishing this end would be to empower the stabilization authority, *not* to sterilize foreign payments, but rather to make at least temporary tariff reductions whenever an excess inflow of payments occurs

International Capital Movement and Foreign Investment

The type of foreign loan which results in the greatest advantage both to the country which makes the loan and to the country that receives it is a loan to improve the productive process in some product which the borrowing country is best fitted to produce A good example of such an investment might be the building of a railroad in some Central American country which will lower the cost of transportation of bananas to the seacoast The saving in cost will provide a means by which the Central American country can pay the interest on the loan at no sacrifice to itself and may very well be large enough to provide additional income above the interest charges The people in the United States, on the other hand, will benefit by being able to obtain a greater quantity of bananas at a lower price than before It is not necessary, of course, for the entire amount of the interest to be paid in bananas As a result of the lower price, the Central American country may sell more bananas to England and then use bills of exchange on England as a means of interest payment We may then use the English bills of exchange to obtain more good woolen cloth

The type of foreign investment from which both the home and the foreign country profit least is the setting up of foreign "branch factories" behind a foreign tariff wall Thus we put "protective" tariffs on Canadian lumber and paper and mineral products In return, Canada puts a protective tariff on American automobiles In consequence, we find Canadian branches of American automobile companies established just across the river from Detroit in Sarnia and Windsor, Ontario Unit costs in the American factories are thus made higher than if the entire output were produced in them and costs in the Canadian branch factories are much higher because the smaller market does not permit full utilization of mass production methods Capital and labor both in Canada and the United States are misdirected to less productive uses as a result of the mutual tariff wall

Short-term foreign loans by a country which has an excess inflow of payments to a country which has a purely temporary (perhaps a seasonal) deficit in its balance of payments may be a means of avoiding unnecessary fluctuations in exchange rates and prices Movements of capital from a country with a deficit balance of payments to a country with an excess inflow of payments are movements in the "wrong direction," usually representing a "flight of capital" Such movements can best be avoided by the discontinuance by the deficit country of the inflationary policies which cause the flight of capital From the point of view of the country which receives the "fleeing capital," this is the type of payment about which the strongest argument for "sterilization" can be made Since most of this capital will return to its own country as soon as the "scare" passes, it cannot be safely used as a basis of expansion by the country which gives it temporary custody

Reciprocal Trade Agreements

Although it contains some elements of bilateralism, the reciprocal trade agreements program represents the first attempt at a return to sanity in American tariff policy in nearly twenty years Under the program, this country negotiates treaties with other countries in which we give duty reductions on certain of their products in return for duty reductions on some of our exports to them

Some curious features may be noted in the negotiation of these treaties We are already bound by "most favored nation" treaties with many other countries whereby we are compelled to give them the same duty reductions as we give to any country under the new trade agreements If we were not careful, each duty concession which we gave under the new treaties might seriously impair our bargaining power to negotiate other trade agreements with countries already on a "most favored nation" status One way of avoiding this which the negotiators have used is to grant concessions on those products only of which the other country making the agreement is the principal supplier to us In negotiating the British Trade Agreement, the Committee has gone even farther than this and introduced "price brackets" in order to avoid giving the same concessions to Japan as we are giving to England until Japan is also willing to make an agreement with us Thus the duty was reduced on high-priced fishing rods, which England supplies, and no duty reduction was made on low-priced fishing rods, which come from Japan

Protests Against the Trade Agreements

Each time the Trade Agreements Committee has a duty concession under consideration, the domestic manufacturers in the industry flock to Washington to protest against "the loss of invested capital" which they say will result and the trade union leaders trot dutifully along to protest against "the loss of jobs when American factories shut down" Let us consider the merit of these protests

It is extremely unlikely that any real capital will be lost Plant and equipment will continue to be operated so long as the price of the product is above marginal variable cost Since few duties constitute more than 50 per cent of the selling price of the product, it is extremely unlikely that even complete abolition of the duty would reduce the price below the variable cost level Stockholders would lose dividends and bondholders might lose some part of their interest, but the plant would continue to be operated till it wore out The loss to stock- and bondholders is offset by the gain to all consumers of the product National income is not reduced, it is merely distributed differently

How about labor? If plants are operated till they wear out, this will mean a period of ten or twenty years during which labor may shift into the expanding export industries which increase output as a result of tariff concessions gained from other countries Meanwhile, the real income of all labor will be increasing as a result of the lower prices resulting from each tariff concession

These results will follow even under the worst possible assumption, that is, that all firms are forced out of the industry in the long run as plant wears out Far more likely, however, only the most inefficient firms will be forced out of competition and the others will continue to operate indefinitely at somewhat reduced profits

The Gain from Trade Agreements

The unthinking observer will attempt to measure the gain from trade agreements solely in terms of increased exports As a matter of fact, we will gain both from increased exports and increased imports, the greater gain will come through increased imports Imports should increase more than exports in order to add to the real wealth and real income of the country We are now "swapping" one $40 vacuum cleaner for about 100 pounds of sugar Perhaps, when we have more agreements, we may be able to swap two vacuum cleaners for 250 pounds of sugar

CHAPTER XXXV

Business Cycles

VARIOUS time series which reflect changes in general business activity are available These may be single indicators such as freight car loadings, electric power plant production, and steel ingot production, or they may be composite indexes such as the American Telephone & Telegraph Company's Index of General Business Conditions, the Federal Reserve Board's index of industrial production, or the Cleveland Trust Company's index

Any of these time series, after seasonal movements within the year and long-run trend have been eliminated by various statistical methods (as they are removed in the composite indices mentioned above), exhibit a more or less regular wave-like movement when plotted on a chart This wave-like movement we call the business cycle

Writers on business cycles call the phases by different names J A Estey calls them expansion, recession, contraction, and revival [1] Some other authors call them recovery, prosperity, recession, and depression A fifth phase, that of financial panic, may accompany some cycles and not others, and when it does occur, it is not always in the same position in the cycle

After some originating force, variously identified by the different theories of the cause of business cycles, expansion starts This phase is characterized by increases in the volume of bank credit and its rate of circulation, increases in employment, in profits, in wages, and by changes in the demand for capital equipment ✓ Since the greatest additional employment in this phase is in the "heavy industries" or capital goods industries, the wages spent are apt to cause the prices of consumers' goods to rise more rapidly than other prices ✓

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[1] Estey, J A, *Business Cycles,* Prentice Hall, Inc, New York, 1941

Estey defines the recession as the turning point during which the forces that make for contraction finally win out over the forces that make for expansion Costs have already caught up with profits in some lines and passed them in some others There is unloading in the stock market, strain and some contraction in bank credit Prices start to decline Production may continue for a while, but much of it is on a variable cost rather than a total cost basis Whether there will be a panic depends upon the nature of the preceding rise, partly on market news items and the way they are played up, and partly on the banks themselves

Contraction is characterized by a rapid decline in output and employment Capital goods suffer the worst and consumers' goods the least There is a fall in average prices, caused partly by liquidation of inventories, partly by reduction in bank credit, and partly by postponement of buying in the expectation of further decline or fear of loss of employment Costs and price relationships are distinctly out of line

Revival is characterized by leveling out of previously falling prices As inventories are gone and must be replenished at levels that cover costs, the motives to price cutting cease Consumers' durable goods are wearing out and need replacement Some costs begin to fall Union wage rates may be cut actually if not nominally by less insistence on working rules People begin to buy "to avoid the rise" and revival is under way

There are a great many theories of the causes of business cycles. These may be roughly classified into groups

1 Real causes
2. Psychological causes.

3 Monetary causes
4 Underconsumption theories
5 Savings and investment

Under each of these headings may be found anywhere from three to a dozen theories by different authors Merely to give an adequate brief digest of each of these theories would take up most of this book Such books have already been written by Professor von Haberler and Professor Estey I shall therefore confine myself to a discussion of only two theories, which I have selected because I think that they are among the best and because they fit well together

The business cycle represents a departure from equilibrium conditions Therefore, if we are to find a cause for the business cycle, we must take as our starting point an assumed condition of complete equilibrium in the economic system and then explain how this is disrupted by the cause or causes we find To start our analysis in a period of depression, with unemployment and unused resources on hand, would only cause us to reason in a circle Depression, unemployment, and unused resources are the result of a past cycle We cannot take them for granted but must explain how they came to be

In our economic system as described in the earlier parts of this book, every departure from equilibrium conditions should merely give rise to a new set of equilibrium conditions to which the economic system should more or less rapidly adjust itself, and each disturbance should carry with it the seeds of its own readjustment For example, if the price of a particular product is too high, resulting in a rate of returns which is higher than that to be obtained in other lines, additional competition will be attracted into the field This competition will affect the situation in two ways first, by lowering the selling price due to the increased supply of the product, second, by raising the costs due to competitive bidding for labor, for raw materials, and for loanable funds, Rising costs and falling selling prices would then bring about a situation in which the rate of earnings in this industry is no higher than in others and further expansion should cease

Before starting a new firm in an industry, intelligent businessmen will attempt to take into account the effect which their own addition to the supply and that of their competitors will have on the market price Their guide, then, is not present "quantities demanded" in physical units (as some writers would seem to imply) nor even present prices It is forecasted future selling prices This allows room for errors of forecasting as an explanation of the business cycle However, such reasoning would ignore the second element in the situation which we have mentioned Rising costs, by decreasing prospective profit margins, should discourage further additional firms from entering the industry, long before the product of the first additional firms comes to the market to depress the selling price Each new firm which enters the industry (and each expansion of productive capacity by old firms) should thus cause estimates of future prices to be revised downward, and should cause an *immediate* rise in costs Under such a situation, some slight overproduction might result in a few lines because of errors in forecasting, but certainly nothing like the violent disturbances which we know as business cycles

In the business cycle, however, we are confronted with a situation in which disturbances from equilibrium, instead of leading to rapid readjustment, give rise to further deviations from equilibrium, in which price rises lead to further price rises, in which large numbers of commodities advance in price at the same time, in which periods of abnormally high prices, instead of being followed by equilibrium prices, are followed by periods of abnormally low prices Where are we to find the explanation for this? It may be found in two elements which were ruled out by our assumptions in the supply and demand discussions of previous chapters—in innovations, and in the changes in the quantity of money, and the maintenance of artificially low interest rates by the banks

Innovations

An innovation[2] may consist of (1) the introduction of a new product, (2) the introduction of a new method of production for an old product (either by new machinery or by a previously untried method of organization of the factors of production), (3) the opening of a new market, (4) the development, or acquisition, of a new source of raw materials, (5) a substantive change in the organization of business (for example, the organization, or breakup, of trusts or cartels)

These changes give rise to substantive changes in the data on which businessmen base their calculations Until the innovation has had time to be absorbed into the economic system and the system has adjusted to it, the old rules for adjusting production to consumption will no longer work Instead of being able to take costs and selling prices as given data and adjusting output to them, businessmen find that costs are changing continually, rapidly, and often without notice Instead of a single shift in the demand curve to which output must be adjusted, they are confronted with a succession of shifts in the demand curves for their product, and with little indication of what the final position will be

To understand this better, let us trace the course of an innovation, say, the introduction of a new product Remember that we start from an equilibrium position with no unemployment and no unused resources (The effects of unemployment and unused resources will be considered later) First of all, the new industry must have plant and equipment To make this plant and equipment, labor and other resources will be withdrawn from the old industries where they have been employed This will tend to increase the costs of the old industries It will also decrease the amount of the old products, since the labor and resources are no longer employed in making them To obtain the labor and the resources, the founders of the new industry must have money capital Moreover, they must pay more for resources and for laborers than these factors have been earning in their previous employment in order to attract them away from the old industries and into the new one Let us assume that the new money capital is provided by the creation of credit by the banking system[8] The demand in terms of money for the old goods will now be greater than before (The workers who are building the new plant, and the owners of the other resources, will want the same goods that they formerly purchased and will have more money with which to buy them) Thus, supply of the old goods is decreased and demand is increased, both tending to cause the prices of the goods to rise There is no reason to expect that the increases in demand and in costs will be felt equally by all the old industries Those old industries, the demand for the products of which rises more rapidly than production costs, will thus be making an abnormal profit and will themselves be motivated to expand To the extent that they borrow from banks in order to do this, the inflationary effect upon prices and the bidding up of costs in order to obtain resources is magnified

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[2] The innovations theory of the business cycle as explained here is that of Professor Schumpeter, but he should not be held responsible for my statement of it

Once the first firm in the new industry has demonstrated the possibilities of the new product, a host of imitators will enter the new business, eager to take advantage of the possibilities for profit in the making of the new product (for instance, one company brings out an electric refrigerator, and other companies, seeing how well it sells, bring out competing refrigerators) The effect of the actions of these imitators will be to magnify the disturbing effects of the innovation as indicated above A period of "prosperity" is then in full swing

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[8] If innovations were financed out of real savings, their rate of introduction would have to be far less rapid Furthermore, without the inflation caused by created credit, the disturbances of the price structure would be far less severe than they are

What happens next? As the factories are completed and the new product starts to appear on the market, it competes with the older goods for the consumers' dollar To the extent that the public buys the new product rather than old ones, demand for the old products is decreased As the innovating firms start to repay bank loans out of profits, quantity of money is decreased, making for a deflationary effect upon prices, and decreasing the demand for goods in terms of money still further As the old firms find the demand for their products decreasing, they will lay off workers and use the money to repay bank loans, rather than to renew the loans and keep the same number of workers The unemployed workers will not buy the same quantity of goods that they did before, and so demand for goods is still further decreased We are in the "vicious spiral of deflation"

Business Depressions

The depression can best be understood as an attempt of the economic system to readjust itself to the new equilibrium conditions caused by the presence of the innovation The new product must be incorporated in the economic system at an equilibrium price and output, hence the older industries must become adjusted to new equilibrium prices and outputs based on the presence of the new product in the market The depth of the depression is not conditioned by the disturbances caused by the innovation alone, but is more attributable to other causes that vary in intensity from one business cycle to another Some of these causes are

1 The extent to which the innovation is introduced before the previous cycle has run its course and before readjustment to

the previous cycle has been accomplished Thus, if the innovation is introduced in the depression phase of the previous cycle (before full equilibrium has been attained), many firms that are doomed to eventual extinction will be given a new "breathing spell" Those prices which should have fallen to bring about readjustment will be prevented from falling The shifts of labor from one industry to another required for equilibrium adjustment will not yet have been completed For these reasons, the "premature" appearance of a new period of prosperity involves not only its own maladjustments but also carries over to the next period of depression some of the maladjustments which should have been corrected by the previous depression

2 The extent to which bank credit has been expanded in the period of prosperity The greater the expansion of bank credit has been, the more rapidly some prices will have risen relatively to others in the period of prosperity, and consequently the greater the amount of readjustment that will be necessary to bring prices into line with each other again Furthermore, the greater the amount of speculative overbuying that has been financed by bank credit, the greater the possibility that these loans will not be repaid as prices fall, and consequently the greater the dangers of bank failures and financial panic

3 The nature of the competitive impact of the innovation If the demand for a new product is at the expense of a decreased demand for all other products in general, then the loss of demand felt by each of the old industries will be comparatively mild, and the readjustment may be easily accomplished (Only one or two firms need leave the industry for equilibrium to be restored, or perhaps excess capacity can be reduced merely by curtailing maintenance expenditures and not replacing some capital goods as they wear out) On the other hand, if most of the competition of the new product is confined to a very few of the old industries, large numbers of firms in these indus-

tries will have to go out of business with consequent heavy losses of invested capital. Moreover, to the extent that the old industries losing business are concentrated in particular localities, the unemployment of labor due to labor immobility will be more serious than if it had been spread thinly over the entire country or the entire world. Likewise, to the extent that unemployment is concentrated among workers of the same specialized skills, it will be more difficult for them to be reabsorbed than if the unemployment was diversified among workers of many different skills.

4. The longer the construction period required by the innovation, the more violent is the necessary readjustment likely to be. When the plant and equipment for the innovation can be built fairly quickly, the new product will start to appear on the market and force readjustment before extreme maladjustments have had time to develop. When, however, the equipment for the new industry requires a long number of years to construct (for example, a railroad), the whole economic system tends to become adjusted to the temporary demands of the construction period. Then, when the construction period has ended and the shifts in demand occur, a far more extensive readjustment will be called for.[4]

5. Closely allied to Point 1 above is the factor which has been so well explained by Professor Schumpeter, that of improper selectivity in the granting of bank loans in the period of depression. If the banks follow their usual procedure, two classes of firms will find it easiest to secure loans in the depression period: those that have a large proportion of their own capital invested in the business, and those that have the best

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[4] Professor Schumpeter has developed an interesting theory of the connection between "major innovations" and "long waves," and "minor innovations" and "short cycles." However, it is one of the virtues of Professor Schumpeter's theory that, while it can explain such periodicity as does exist, the theory itself is not dependent on periodicity for its validity.

reputation for repaying their loans in the past But some of these may be the very ones that will eventually be forced out of competition by the innovation If these firms are tided over the period of depression by the granting to them of bank loans, their failure may be delayed until the next depression period, to the severity of which this delay in adjustment will contribute In a period of depression following an innovation, it may be extremely difficult for the banks, or anyone else, to determine how much of a firm's loss of business is purely a depression loss which will be recovered when general business conditions improve, and how much is a permanent loss due to competition of the innovation

The Additional Credit Theory

An alternative, although not contradictory,[5] theory of the business cycle as developed by Professor F A von Hayek runs in terms of monetary causes, and changes in interest rates [6] We found in the discussion on distribution that one of the conditions of equilibrium is that the marginal products of factors of production must be equal to their prices In the case of money capital, another way of stating this principle would be to say that the rate of return[7] which is being earned by invested funds must be equal to the market rate of interest This equilibrium may be disturbed by either (a) a *rise* in the rate of return on invested capital (the most probable cause of which is innovations) or (b) a *decline* in the rate of interest charged by lenders (the principal lending agencies being, of course, the banks) Whether caused by (a) or (b), this discrepancy between the rate which can be earned by using capital in business and the rate which must be paid for its use is a motive for business expansion involving both an increased demand and higher prices for capital goods, and an increased demand for funds with which to purchase the capital goods and with which to finance their manufacture

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[5] Professor Schumpeter makes credit creation an integral part of his theory He would, however, insist that deliberate lowering of the "market rate of interest or expansion of currency as a political fiscal policy comes under the heading of "non-economic causes " Professor Hayek, while recognizing innovations as one of the most important causes of changes in the "natural rate of interest,' would hold that innovations cannot explain the cycle without a substantive monetary explanation, and would insist on the importance of declines in the market rate of interest as a sufficient originating cause of a cycle *sui generis* There are many other differences in exposition which may be considered more than mere differences in emphasis Nevertheless, the two theories are not irreconcilable but are both important contributions to the understanding of a difficult subject

[6] The statement of the theory which follows is an oversimplification For a full statement of Hayek s views, see *Monetary Theory and the Trade Cycle* Harcourt, Brace & Co , New York, 1932, and *Prices and Production* George Routledge & Sons, Ltd , London, 1931 His article, 'The Paradox of Saving," *Economica* No 32, May, 1931, besides being a masterly criticism of the fallacies of underconsumption theories for the business cycle, will prove an aid in the understanding of the thesis of his two books

As we have seen in the chapter on interest, if the increased amount of loanable funds were obtainable from savers only, the rate of interest would have to rise to compensate for their increasing rates of time preference and their consequent increasing reluctance to loan greater proportions of their incomes If the market rate of interest did so rise, the expansion would be curtailed very quickly and a new equilibrium point would be reached because (a) the increased prices of capital goods and the increased interest charges would soon bring the cost of *using* capital goods up to the point where it equalled the expected rate of return, and (b) the higher interest charges and higher labor costs (necessary to draw workers away from consumers' goods industries) would soon bring the cost of *manufacture* of capital goods up to the point where it was equal to the higher prices of capital goods

As we have seen in the chapters on money and banking, however, the amount of loanable funds can be expanded by *created* bank credit, and in the usual course of events this is the case When this occurs, it is not necessary for the rate of interest to rise as rapidly as it would if new savings were the only source of credit. In the competition by the banks to make use of their idle lending capacity,[8] the rate of interest they charged will rise very slowly, if at all, during the early part of the period of expansion. Furthermore, the cash balance theory teaches us that this expansion of bank money will result in disproportionate price rises which will in themselves be the motivation for overexpansion and speculative activity in many lines.

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[7] *Cf* Hayek's *Monetary Theory and the Trade Cycle,* p 209, for a discussion of the natural rate of interest

During all the period when interest rates are kept artificially low by the expansion of bank credit, many projects are undertaken which would not be advisable at higher rates of interest. But these low interest rates cannot be maintained forever. Eventually a drainage of cash will force the banks to take heed of their reserve ratios. New loans will be discouraged by a higher rate of interest and old loans will not be renewed. The demand for capital goods which was motivated by low interest rates and financed by bank credit will now decline. Capital goods manufacturers will curtail output or close down, and the spiral of deflation will begin.

Forced Saving

Since *forced saving* plays an important role not only in the theories of Schumpeter and Hayek but in the writings of many other modern theorists (for example, D. H. Robertson and J. M. Keynes), we will do well to understand it thoroughly. We can grasp the nature and significance of forced saving best by contrasting it with "voluntary saving." When you save voluntarily, you do so by not spending all of your income on consumers' goods. Thus, you save both money and goods. For yourself, you save the money you did not spend, for the community, you save the goods you did not buy. Consequently, when you lend the money to someone who uses it to hire workers to make producers' goods, the workers take the money which you did not spend and spend it for the goods you did not buy There is thus no tendency for the prices of consumers' goods to rise To state the proposition in a different way the withdrawal of workers from the making of consumers' goods in order to make producers' goods decreases the supply of consumers' goods But the fact that you refrain *voluntarily* from buying consumers' goods means that the demand for consumers' goods in terms of money is likewise decreased Decrease in supply is offset by decrease in demand, so that prices do not necessarily rise Furthermore, as long as you and other people continue to save the same amount (and lend it), the demand for producers' goods will remain unchanged and there will be no need for the producers' goods factories to shut down (as we found to be the case when bank credit was curtailed)

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[8] Remember that expansion of credit by one bank provides a basis for expansion of credit by the others, so long as they 'keep in step' in expanding credit together.

What is the situation under forced saving? The banking system lends created credit with which to buy or manufacture producers' goods Workers are withdrawn from consumers' goods industries, and the supply of consumers' goods is decreased as before However, since we presume you are not saving voluntarily, your demand for consumers' goods will not have decreased On the other hand, the increased quantity of bank money placed in the hands of the workers will mean an increased demand for consumers' goods in terms of money To the extent that you and other people have fixed incomes, you will be deprived of goods by the higher prices This is what is meant by "forced saving" You do not save money but, although you spend the same amount of money, the higher prices of goods prevent you from consuming as much as you did before These goods (or rather the services of factors of production) which you involuntarily refrain from consuming are then available for consumption by the workers who make producers' goods. This is not an equilibrium situation. As soon as possible, you and the others who have been deprived of goods will attempt to secure an increase in your incomes (when contracts expire, higher salaries will be insisted on, when leases expire, higher rental will be demanded, and so on). As your incomes increase, you will try to buy the goods of which you have been temporarily deprived by the high prices.

This increased demand will cause the consumers' goods industries to bid competitively for workers and raw materials, thus raising costs in the producers' goods industries. Still more important, as the limits of bank credit expansion are approached, interest rates will rise rapidly. Thus, the longer the productive process before goods can reach the consumer, the greater will be the burden of increased costs imposed by the higher interest charges. In the face of higher interest charges, possibilities for profit will exist only in the making of consumers' goods by the shortest means possible. New projects requiring a long time for their completion will no longer be undertaken, and work may even cease for a time on partially completed projects. The construction, machine-tool, and similar industries, feeling the decline in demand for their products, will start to lay off workers. The loans granted for many long-term projects will prove to be unsound, and banks will start to contract credit in a struggle for liquidity. In consequence, workers will be released from the producers' goods industries faster than they can be reabsorbed by the consumers' goods industries. The unemployed workers will buy fewer goods and the consumers' goods industries in turn will suffer from reduced demand, although not so seriously as the producers' goods industries. Recession and depression ensue until different prices and costs can be readjusted to each other on a workable basis.

To complete another phase of our analysis, let us return to the situation under voluntary saving When the producers' goods (the construction of which has been financed by voluntary saving) are completed and start to yield a result in the form of consumers' goods, the increased amount coming on the market will tend to cause the price of consumers' goods to fall However, since no distortion of the price system through the expansion of bank credit has taken place, such a decline in price would have been anticipated before the construction of the capital goods was undertaken Businessmen would have taken into account the effect of a lower price for a larger output, and would not have ordered the capital goods unless the lowering of costs would be sufficient to offset the expected decline in price This sort of decline in price would thus be merely a required equilibrium adjustment and not a serious disturbance to the economic system Indeed, the virtues of improvements in production which lower costs, and of the consequent competition which lowers selling prices, are extolled by all of the orthodox economic writers

Stabilization of the General Price Level

Now, however, suppose that these prices are falling owing to decreased production costs The authorities of the banking system, noticing the decline in the average or "general" price level, say to themselves "A falling general price level is bad It will discourage business We must keep the price level up To do so we must expand the currency The easiest way to expand the currency is to lower discount rates, which will encourage borrowing and put more bank credit into circulation" What happens if this policy is adopted? The lowered interest rates will encourage the production of still more capital goods, resulting in a still greater output of consumers' goods, again starting to cause a fall in the price level, so that a still greater expansion of credit is required to keep the price level from falling Obviously this process can be continued only until the absolute limits to bank credit expansion are reached Meanwhile all of the disproportionalities, which we discussed under forced saving and in the chapter on money, will have developed Thus we may see that the maintenance of a stable price level when costs are falling is really a form of concealed inflation

It is only in these terms that the situation in the United States from 1923 to 1929 can be understood[9] We had an extraordinarily stable price level from 1923 to 1929, but the collapse of 1929–33 demonstrated the tremendous amount of unsound credit on which it was based Whether we have learned anything from the experience and whether it will be politically expedient to put our knowledge into practice, only time can demonstrate

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[9] From a statistical point of view, the inflation was even more "concealed' than we have indicated It was to be found mainly in the increase of "time rather than of "demand" deposits, although demand deposits did increase by a considerable amount During this period, because of the lower reserve ratio required on time deposits, many banks urged their customers to transfer their idle demand deposits to time deposit accounts When the idle demand deposits were then replaced by active demand deposits, the increase in velocity of circulation ' was considerable Moreover, since the requirement of 15 days notice before withdrawal of time deposits was waived by most of the banks, the time deposits themselves became in effect demand deposits for many purposes

A planned society is not necessarily a socialist society[2] A scheme of central planning could be devised which would operate to yield its greatest benefits to a small aristocracy, to all native whites, to the leaders of a communist or fascist party, or to any other controlling group While in theory a socialist society might get along without much central planning, operating simply as a collection of individually socialized industries, most contemporary socialists lay great stress on planning as an important feature of such a society

The concept of planning cannot be dissociated from the end or purpose such planning is expected to achieve The vaguer Utopians tell us that such planning should be for the "common welfare" and fail to give us any very definite standards of their concept of this ambiguous term It is possible, of course, to decide the standards of common welfare upon the basis of a majority vote It is entirely within the realm of possibility, however, that under such a system the voting of the majority (or of an effectively organized voting minority) might result in as much, or nearly as much, exploitation of minority groups as exists in our present much-maligned system Some more definite statements of the socialist welfare formula have been "From each according to his ability, to each according to his need," "Equal distribution of income," and recently the more sophisticated, "The most equal distribution of income ,that is consistent with the greatest social net product" It is not our purpose here to question the wisdom of these welfare concepts We are more concerned with the problems of the Socialist Central Planning Board which is entrusted with the task of effectuating them

The basic problems confronting such a board are· (1) How much of each good shall be produced? (2) How are the resources of production to be allocated for the production of these goods? (3) How can the efficiency of any given production unit be measured? (4) How much of the resources of production shall be devoted to the production of goods for present consumption and how much to goods for future consumption (capital goods)?

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[2] See Mackenzie, Findlay, *Planned Society Yesterday, Today, Tomorrow,* Prentice-Hall, Inc, New York, 1937

If equal, or nearly equal, incomes are to be established, the present proportions in which goods are manufactured will hardly be more than a point of departure from which the board may start its calculations Steam yachts, mink coats, and other articles of "conspicuous consumption" would be definitely out of the picture for home consumption (It still might be desirable to produce some of this type of goods for export if other countries are capitalistic caviar and sables are important articles of export from Russia) In place of these goods there would need to be a tremendous expansion in some of the more common articles of consumption How shall the various quantities of these goods be determined?

Assume that the board should happen to make a fairly good statistical estimate of the total amount of each good required There is still the problem of distributing these goods Rationing does not seem to be an adequate solution for the problem Of some goods there would not even be one apiece to go around (automobiles for example) Even for other goods which might be more plentiful, rationing would not achieve the greatest possible satisfaction for each individual One might prefer to have an additional suit of clothes rather than more shirts and shoes, while another would prefer to have more books or phonograph records Surely the Socialists who are so critical of inefficiency in our present system would not ask us to return to the crudities of barter to correct the faults of rationing It would seem that some sort of money and price system would not only be more efficient but also, through allowing greater freedom of choice, would result in a greater total satisfaction Goods that were scarce relative to the demand for them could be priced high and other goods, of which there was a greater quantity available, could be priced low. The buyers' responses to these prices would then serve as a guide to expansion or contraction of production of various goods in subsequent periods. The chief criticism of capitalist price structure from a welfare point of view is that it reflects differences in incomes as much as or more than it does differences in desire for the product. With a more nearly equal distribution of income it would seem that the prices which people were willing to pay would be a fairly accurate indication of the desire for the product.

Even with a price system the problem is by no means simple. In addition to the desire for each good, the prices set should take account of the social cost involved in its production. The social cost of production of any unit of a good will be the amount of the most valuable alternative product that could be produced with the same resources. Since the socialist system is presumably ruling out profits, equilibrium for an industry would be established at the point where average revenue is equal to average social cost.

The magnitude of the task of the planning board is occasioned both by the number of prices which must be set and by the fact that these must be set with reference to each other, that is, there must be a general equilibrium solution. Under capitalism the individual firm is more or less able to accept the demand curve for its product as given data (possibly to be altered by advertising), the cost elements are also given data for the vast majority of firms. With our planning board, however, the prices which it sets for all other products will be an important element in determining the demand for any one product, the prices set for other products will be the basis for imputing the value of labor and capital used in their production. This value of labor and capital will then, in turn, be the cost data upon which the output and price of any single commodity must be adjusted. To solve the problem at one fell swoop would require the solution of thousands of simultaneous equations (possibly with the number of unknowns exceeding the number of equations) Even if the socialized state were a static state, the ideal solution could be reached only after a long process of trial and error The Socialists, however, are insistent that socialism will not be a bar to technological progress so that these problems must be solved not for a static, but for a dynamic state The solution to the pricing problem and the balance between the production of different goods is admittedly faulty under capitalism There is little ground for arguing that socialism would improve upon it According to Professor Pigou, "What is needed to improve on it, is not will, but knowledge The relevant knowledge is of a sort that we do not at present possess, and the eventual winning of which is no more likely under the one system than under the other "[3]

Allocation of Resources

The allocation of resources is, of course, dependent upon the decision of the relative quantities of goods to be produced However, certain other problems are also present The allocation of labor possibly presents more difficulties than any other factor Workers may be allowed their own choice of occupation as far as is practicable, but it is still extremely unlikely that the number of workers who desired to enter any particular occupation would exactly correspond to the required number If equal wages are to be the rule, excess numbers would have to be weeded out of the overcrowded occupations by some arbitrary decree and workers would have to be forced into the employments where there was a deficient labor supply by similarly coercive means It appears that the only way to avoid such arbitrary action would be to pay higher wages in the understaffed occupations and lower wages for those in which the labor supply was in excess Whether this would be too much of a compromise with the doctrine of equal incomes is still a matter for debate among Socialists

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[3] Pigou, A C, *Socialism Versus Capitalism*, p 44.

Certain occupations also require a much longer period of training than others The state will have to decide which individuals are to be selected for such training For some occupations this selection may be done much better under socialism than under capitalism Previous school records may be made the basis for selection without the qualification of family wealth to cover the expense of education which exists in capitalistic societies There is still bound to be a considerable margin of error, however, the mere fact that a boy makes an "A" in beginning chemistry is no positive proof that he will be a competent physician or surgeon

The costs of training suggest an additional element in general cost calculations Those industries which are given highly trained workers must be charged with the cost of training not only the workers actually used but also a proper *pro rata* share of the cost of training, or partial training, of other individuals who have been "tried and found wanting " If equal wages are to be paid to all workers, those who are selected for higher technical training should be paid, while they are studying in the technical school (in addition to free tuition), a wage equal to that which they might otherwise be earning If higher wages are to be paid for the more highly trained occupations, simply giving tuition and living expenses during the training period may constitute an adequate recompense and an adequate inducement Regardless of which system is used, the social cost of training (which, in addition to the cost of running the school, consists of the loss of otherwise possible productive services of students during the training period) will be about the same

Unless some such form of cost accounting is used to charge the various industries with the cost of training workers assigned to them, the calculations of the planning board are apt to fall into serious error Those industries which ordinarily employ a greater proportion of skilled and trained men might easily be found to be turning out a greater value product than are other industries employing a similar number of less skilled workers This might lead to false judgments as to the relative efficiency of management in the two types of industries Worse still, it might lead the planning board to divert a greater amount of labor into the skilled and trained occupations than would be warranted by a proper balancing of properly calculated social cost and social product

The allocation of resources other than labor may not be quite so difficult (assuming that the problem of determining the right proportions of consumers' goods has been solved) The same price may be charged for raw materials to all industries which use them so that efficiency comparisons on this basis will not necessarily be distorted Other serious considerations are present, however If the industries are willing to take more than the present output at the established price, should the output of the mines be expanded to accommodate the demand, or should the price of the materials be raised so as to exclude the least valuable uses? The decision here rests on the relative merits of conservation of resources *versus* present satisfaction of consumers' wants The price cannot be set simply to cover the costs of extraction but must take some account of the "depletion" involved in using up exhaustible natural resources In the case of lumber the solution is fairly easy The "harvest" can be confined to mature timber and reforestation can be practiced to assure a fairly even annual supply In agriculture the best soil conserving practices can be adopted and a price sufficient to cover the costs of these practices may be sufficient to guarantee against soil depletion For irreplaceable mineral resources the board has no such easy solution Under capitalism the scarcest of these resources are generally under a considerable degree of monopolistic control The element of monopoly profit in their price has a considerable tendency to check what may be too rapid consumption Under socialism the only check will be the wisdom of the board in weighing the relative merits of the claims of present and future generations to the use of the resources

Measurement of Efficiency

We have already mentioned some of the general problems of efficiency measurement but there are some particular problems which deserve special consideration In the competitive parts of a capitalist economy at least a rough method is provided in the comparison of results of different firms which operate under more or less similar conditions Also, wherever competition is effective there are strong tendencies toward increased efficiency, regardless of whether or not any efforts are made to measure efficiency Competition for the best land tends to force it into its most valuable uses (most valuable from a capitalistic viewpoint, of course) Competition for the use of the most efficient laborers' services may result in wages which are roughly proportional to the differences in efficiency Most important of all, the process of bankruptcy is continually at work to weed out the least efficient managers It is one of the most pertinent criticisms of monopoly that these forces either do not operate, or operate much less strongly under monopoly than they do under competition

In a socialist economy, although monopoly prices may perhaps not be charged, each industry will constitute a monopoly from the viewpoint of operation and management It follows that if the capacity of managers is to be measured so that the inefficient ones may be removed and replaced, there must be some method of measuring the potential productive capacity of the resources with which they are supplied A part of the problem with respect to labor might be solved by the adoption of the piece-work system of wages wherever applicable (In addition to the actual wage, a system of family allowances might be made to give additional compensation out of general state funds to workers with dependents) If some such system is not used, and in places where piece-work is not applicable, some form of "accounting labor cost" must be adopted which will charge the manager who is given highly efficient workers with a higher labor cost than the manager to whom less efficient workers may be assigned Much the same principle applies to other resources It would be obviously unfair to expect the manager of a collective farm in Montana to produce the same yield of corn as is obtainable in Iowa or northern Illinois In accounting, some consideration must be given to the element of economic rent even in a socialist economy

Some form of reasonably accurate cost accounting must be devised, not only to measure the efficiency of management but also to be used as a guide in the proper allocation of resources There are some jobs which are best adapted to take full advantage of the most efficient workers' capacities In other jobs individual differences in labor efficiency may be only a negligible factor in affecting total output Obviously, if greatest production is to be achieved, the efficient workmen must be placed in those positions where their superior efficiency will have the greatest opportunity to affect the output

Note that in the measurement of efficiency for the purpose of allocation of resources, the relevant criterion must be economic efficiency rather than mere technological efficiency Thus a given piece of land might be capable of producing a bale of cotton to the acre as compared to a national average of only half a bale The same land might be capable of producing only 20 bushels of corn to the acre as compared to a national average of 25 bushels If the national economy was in more pressing need for corn than it was for cotton, however, it might be advisable to use this land for corn rather than for cotton

A very serious problem of efficiency-measurement presents itself where one industry is producing semi-finished products which are turned over to other industries for further fabrication or for incorporation as parts in some other product If the price set for the semi-finished product is too high, the efficiency of the primary producer will be made to appear greater than it actually is, whereas the other industries which use the product will be made to appear less efficient than they really are If the price is set too low, the comparison will be unfair in the opposite direction

Balance Between Capital Goods and Consumers' Goods

Our planning board will have several types of decisions to make with respect to capital It must decide whether the existing capital equipment is to be reduced, maintained, or expanded Even on that portion which represents maintenance, it must be decided whether capital shall be apportioned among industries in the same ratio as it has been in the past or whether the capital equipment of some industries should be expanded and that of others contracted If it is decided to expand the total capital equipment of the nation, the decision must be made as to how this equipment is to be allocated among the old industries and what part is to be devoted to the establishment of new industries, if any The rate of capital replacement must also be determined Should old machines be used until they are worn out or should they be replaced by newer types of machines as fast as new ones are invented?

Perhaps the best approach to these problems is to work from the particular to the general If the principle of social cost is to be followed, each industry should be charged for the maintenance of the capital which it uses Such a charge may properly be made a part of the price of the product It does not necessarily follow that maintenance charges must be used to replace capital in the particular industry, changes in "demand" may indicate that capital in this particular industry should be reduced while in some others it is being expanded The maintenance charge is necessary in all industries, however, to prevent an *involuntary* reduction in the total amount of capital equipment of society and to keep a proper cost accounting basis If it should actually be decided that the total amount of capital in existence was too large, then the maintenance charges of all industries could be reduced by a flat percentage representing the desired amount of decrease

In addition to the maintenance charges, some account must be taken of the fact that labor and other resources, if not used to make capital goods, could be used to make consumers' goods by more direct processes This brings us back to the general question of the desirability of present goods *versus* future goods, or in other words, to the question of a social rate of interest The question here is whether this decision is to be made on an individual or a group basis One method might be the dependence on individual voluntary savings to provide capital Such saving might be induced by setting a rate of interest to be paid Immediately, however, we run into some difficulties If socialism prohibits inequalities of income due to inherited wealth, if it provides completely free public education, and if it reduces unemployment and cares for the aged and infirm, many of the motives for saving which exist in a capitalist society will no longer be present Practically the only motive left for saving is that provided by the interest rate itself, that is, by the prospect of the increased amount of goods to be consumed by the same individual in the not-too-distant future It seems almost certain that, to induce any considerable amount of saving, this rate would have to be extremely high

An interest rate does not solve the problem It merely allows individuals to save or not as they see fit and to govern their savings by the amount of the interest rate as it appeals to them The decision is still up to the planning board. If it thinks that a large accumulation of capital is desirable, it will set a high interest rate, if not, it will set a low one

It is not necessary for the socialist state to pay interest in order to obtain capital equipment (Strict Marxist theory regards interest with horror as an "unjustified" return) The state could simply assign workers and resources arbitrarily to the industries producing capital goods Payment of money wages to the workers would enable them to buy their share of consumers' goods in competition with other workers The net effect is a form of "forced saving" quite similar to that resulting from the use of created bank credit under capitalism

Even though there is no such thing as a market rate of interest in the socialist state, some concept closely similar to it is necessary for figuring social cost and for the allocation of capital goods to various industries When any industry receives capital goods (either for addition to total capital or for replacement), it means that the community has had to go without the present consumption of such consumers' goods as might have been produced if the labor and resources had not been used to make these capital goods Therefore, capital should be put to only those uses in which it can yield a return in social value which will be sufficient to compensate for the postponement of consumption as well as for the cost of production of the capital goods This compensation for the postponement of consumption is really a social rate of interest Thus, although the board does not pay a rate of interest, it is compelled to charge one for proper accounting purposes If saving is not voluntary on the part of individuals, the state must operate on the theory that the planning board is a better judge of the relative merits of present *versus* future consumption than the people are themselves

Contrary to the opinion of many critics of socialism, there appears to be more danger that arbitrary decisions of a planning board will result in too-rapid expansion of capital equipment rather than that the expansion will be too slow Engineers and technical experts in the various industries will always be eager to adopt new machinery which, by purely engineering standards, is more efficient than the old machines with which they are working The Russian experiment was confirming evidence of this Workers have been asked to "pull in their belts" for one Five-Year Plan after another in order to industrialize the country at what most observers believe to be too rapid a rate (In part this was due to the fear of not being able to obtain goods from capitalist countries In this the Russians displayed their ignorance of the businessman's psychology, a communist dollar sounds as sweet to him when it is ringing in the cash register as any other dollar) In order for new machinery to replace old machinery or to be made as an addition to total capital, the net gain in value of product added by the new machine must be sufficient to compensate for the postponement of consumption as well as for the other costs involved

We still have not solved the problem of what should be the amount of the social rate of interest We have not found a proper welfare standard for balancing the merits of present consumption against future consumption One possible method might be to put the question to a popular vote, but this might easily lead to too small an accumulation of capital People might vote to feed and clothe and house themselves well at the possible expense of provision for future generations The Socialist would, of course, answer that the difference in human nature under socialism would militate against this This, however, is an argument which the economist is not competent to answer

CHAPTER XXXVII

Economic Planning in a Totalitarian State

THE IMMEDIATE difficulty in discussing totalitarian planning is to find a proper statement of its objectives so that the planning may be analyzed in the light of possible attainment of the desired goals.[1] In all the pronouncements of the leaders of these states we find the avowed aim of "aggrandizement of the state" or "welfare of the state", for example, "nothing outside or above the state, nothing against the state, everything within the state, everything for the state."[2] It is difficult for most of us, however, to grasp a concept of the "welfare of the state" which is avowedly different from the "general welfare" of the individuals who compose the state. We know how hard it is to measure or even to define "general welfare" in the ordinary sense of the term, how much more difficult, then, to frame a concept of the "welfare" of an abstract creature called the state in whose advancement even the identity of the individual is supposed to be lost.

A few possible explanations offer themselves. First, for the vague concept of the "welfare of the state" we might substitute "the development of the state as an efficient engine for waging war." Such a statement would hardly be inconsistent either with the statements or the actions of Hitler and Mussolini It might be said further that such a concept involves the ability to wage a war of aggression rather than the mere defense of the state Warfare, however, would seem to be the antithesis of welfare, even for this nebulous creature called the state Even expenditures for defense consume, rather than create, national wealth and are regarded by most people simply as a necessary evil It seems to be fairly well established also that no nation has made a net profit on any territory acquired by war in recent years The "bloodless victories" of Germany over Austria and Czecho-Slovakia may appear to be exceptions to this If it turns out to be necessary to maintain any large military force to keep these countries subjugated, however, it may prove that Germany could have made more by trading with these countries than by technically owning them

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[1] See Mackenzie, Findlay, *Planned Society: Yesterday, Today, Tomorrow,* Ch. XXIII, Prentice-Hall, Inc., New York, 1937.

[2] Sturgo, M. Luigi, "The Totalitarian State," *Social Research,* May 1936, pp. 222–235.

There is one peculiar psychological basis for a military "welfare" concept Some individuals may derive great pride in being citizens of a powerful state which is respected or feared by other nations The theory behind this is that membership in a "glorious" group is a compensation for an individual inferiority complex Much the same phenomenon can be observed in college fraternity life and in supposedly more adult fraternal organizations The individual who wastes the most time bragging about his fraternity or his club is usually the one with the fewest personal attributes of which he can be proud as an individual We cannot dismiss this attitude too lightly The question is, though, how many people are so constructed that the satisfaction of this vanity will compensate for the lack of satisfaction of more material wants? How much butter and bratwurst will the German be willing to give up in exchange for bullets and bayonets?

There is also another angle to the military "welfare" concept Some individuals are so constructed mentally that they do not like to make decisions for themselves For these people, the regimentation of their lives under an army type of discipline where most of the decisions are made for them, plus a reasonable amount of security, may offer an attractive rather than an unattractive mode of existence. Even though these people may recoil from making decisions themselves, a considerable part of their happiness will depend upon how well the central authority succeeds in making decisions which are pleasing to them. Again we have the question of what proportion of the population is of this mental type. On the basis of these two aspects of military "welfare" we have a curious paradox. The "all glorious state" is best adapted to the welfare of a nation of weaklings and mental misfits.

Another possible explanation presents itself. The "welfare of the state" may be simply a smoke screen to cover the exploitation of the rest of the people for the benefit of a certain favored group (the Nazi leadership in Germany, the Communist party members in Russia). The fact that party membership is limited, although all totalitarian states have one-party governments and will tolerate no other parties, lends substance to this interpretation. The claim of "acting in the best interests of the nation" is always considered good political strategy in any country. It is, moreover, a comparatively easy process of reasoning for those in power to convince themselves that what is good for them personally is good for the nation as a whole. The chief difference between democracies and dictatorships in this respect is that democracies provide a ready means of "turning the rascals out" when the decisions resulting from this form of mental astigmatism are in fact offensive to the majority of the people.

A distinction must be drawn here between totalitarianism as it exists in Russia and its manifestations in Italy and Germany. Stalin claims repeatedly that the present techniques are simply a temporary expedient designed to prepare the people and the country for its ultimate goal of pure Marxist socialism. It is somewhat difficult, however, to reconcile this claim with the purges of the "Old Bolsheviks" whose principal offense is apparently a more strict adherence to Marxist doctrine than that practiced by the Communist party under the Stalin dictatorship The longer the change to a pure social democracy is delayed, however, the less likely is the possibility that it will be achieved by anything short of a revolutionary overthrow of the present leadership Fascist totalitarianism, on the other hand, makes the subjugation of the individual to the state a matter of avowed and permanent policy Judged by actions rather than by avowed claims, the difference between the two forms is apparently steadily diminishing Fascism[3] started as the avowed protector of capitalism and private property. The devices of exchange control, compulsory cartellization, price-fixing, conscription of labor and similar measures have, however, left little semblance of capitalism as it exists in a free market and have meant much more impairment of the rights of private property than most other countries have exercised even in war time Russia, on her side, starting from a strictly communist ideology, has modified this with differential wages, various forms of private property, and other characteristically capitalist devices We shall devote no further particular attention to Russia To the extent that she tries to operate on socialist lines, the preceding chapter gives an analysis of her problem If she turns toward fascism, as she may possibly do, the present chapter will be more applicable

We still have not settled upon a statement of the fascist objective In spite of other interpretations which may be placed upon both the words and actions of leaders in the fascist states, let us consider as their objective "the development of the state as an efficient engine for waging war" We have the authority of Mussolini himself in considering this to be the fascist aim

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[3] The terms "fascism" and 'fascist" as used in this chapter are intended to designate the systems prevailing in both Italy and Germany

> And above all, Fascism, the more it considers and observes the future and the development of humanity quite apart from political considerations of the moment, believes neither in the possibility nor the utility of perpetual peace It thus repudiates the doctrine of Pacifism—born of a renunciation of the struggle and an act of cowardice in the face of sacrifice War alone brings up to its highest tension all human energy and puts the stamp of nobility upon the peoples who have the courage to meet it All other trials are substitutes, which never really put men into the position where they have to make the great decision—the alternative of life or death Thus a doctrine which is founded upon this harmful postulate of peace is hostile to Fascism
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> But here again Fascism repudiates the conception of 'economic' happiness, to be realized by Socialism and, as it were, at a given moment in economic evolution to assure to everyone the maximum of well-being Fascism denies the materialist conception of happiness as a possibility, and abandons it to its inventors, the economists of the first half of the nineteenth century that is to say, Fascism denies the validity of the equation, well-being equals happiness, which would reduce men to the level of animals, caring for one thing only—to be fat and well-fed —and would thus degrade humanity to a purely physical existence [4]

Judged as a system of preparing the state for war, the fascist plan offers many advantages The rigid discipline which prevails during peacetime means that no very great change in governmental controls will have to take place when a war actually occurs Giving preference to "essential industries of war" in obtaining labor and raw materials during peacetimes tends to lessen the shock and confusion to the economic and industrial system in changing from a peacetime to a wartime basis Roads, railroads and other forms of transport are constructed and operated, not with a view to maximum economic service in time of peace, but rather with a view to maximum strategic importance in time of war The maintenance of a very large standing army plus a trained reserve, together with carefully rehearsed mobilization plans, allows the state to bring the maximum possible number of men under arms in the minimum length of time

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[4] Benito Mussolini, The Political and Social Doctrine of Fascism,' in Mackenzie, Findlay, *Planned Society Yesterday, Today, Tomorrow,* Prentice-Hall, Inc, New York, 1937, pp 803–805,

The technique of exchange controls plus subsidization of domestic production in essential industries tends to make the fascist state as nearly self-sufficient as national resources and national genius in inventing substitute goods will permit Another advantage must be conceded to the fascist economics of warfare In a free market the attempt to expand the production of munitions by such great amounts would naturally lead to large increases in wages and prices of raw materials for the munitions industries The fascist state is not troubled in this manner It controls the labor unions and forbids them to ask for wage increases It may set maximum prices on domestically produced raw materials If the raw materials are imported, it may prevent "nonessential" industries from bidding competitively for them by denying them the necessary foreign exchange with which to make purchases If not enough labor offers itself at the fixed wage rates, the state conscripts labor to work on desired military projects Where the state can command it does not have to induce

Currency inflation (carefully concealed as far as possible by exchange controls), together with the ability to fix maximum prices for certain goods, provides for a tremendous amount of what might properly be called "extra-budgetary taxation", or we might call it "forced saving" for military purposes If a free market were maintained, the attempt to raise the necessary funds for military expenditures by direct taxation might be sufficient to arouse the open hostility of even so phlegmatic an individual as the average German

On the basis of the above considerations we must concede that the fascist system is magnificently designed for preparation for a "quick short war" Even on the basis of war efficiency, particularly if the war is to be a long one, we may raise some questions concerning the efficacy of fascist organization, The morale of the people is considered to be an extremely important element by all of the experts in the art of war To what extent will the lowered standard of living (made necessary by the devotion of so much of the country's resources for military purposes) be a contributory factor to reduced wartime morale? Simply to maintain themselves in power and to facilitate the acceptance of what would otherwise be unpopular decrees, the fascist leaders have made a greater use of propaganda and appeals to patriotism than has ever been witnessed in a peacetime state Will not the too-often repeated use of this instrument have dulled its edge so that actual wartime propaganda will be ineffective? As the peacetime benefits of fascist organization become increasingly and obviously confined to party members, and more particularly to party leaders, will not the resulting dissatisfaction tend to make a poor basis for national unity in time of war?

We must now turn to an appraisal of fascism as a program for peacetime economic planning In spite of the lofty disdain which Mussolini and Hitler profess for the material things of life (speaking themselves with full stomachs), the average Italian and the average German are probably still concerned with the standard of living which the regime gives to them In judging the ability of fascism to increase national wealth or national income or to provide a higher peacetime standard of living, we may be unfair to fascist leaders who specifically disavow such ends In deciding whether to adopt fascism for America, however, it might be perfectly in order to postulate some such criteria We do not need to fight an offensive war, preparation for defense is sufficient Therefore, the question as far as we are concerned is What has the technique of fascist control to offer in the way of solution for our peacetime economic problems?

At the very outset it must be conceded that a dictatorship is much better adapted for comprehensive central planning than is a constitutional democracy The plan can be worked out as a consistent whole and need not suffer the amount of compromises which are necessary to get legislation adopted by a democratic legislature While the plan is in operation the only political compromises which need to be made are the minimum necessary to prevent a revolution Perhaps this means only the maintenance of a sufficiently large police force, and keeping the police themselves contented All this implies, however, is that the dictatorship has power, it is not implied that it has the requisite knowledge to make the best plan or to administer it

The minute that we advocate departure from the judgments of a free market in establishing economic values, we are postulating that the central authority has a better knowledge of what is best for the common welfare than have the people themselves We found in the preceding chapter some of the difficulties which this entails The Socialists are at least able to offer the claim that unequal distribution tends to distort the pricing process Fascism is the avowed "protector of capitalism" and so cannot promise equal incomes Perhaps the fascist system aims simply to give us a "better" distribution of income rather than equal incomes If so, what standards are there to determine how such income should be apportioned?

Fascism has, of course, offered us no plan of income distribution The only obvious policy along these lines has been the attempt to "preserve small business" Planning for this purpose, however, involves a negation of, rather than an increase of, economic efficiency Insofar as small businesses are efficient, unless they are actively hindered, they will survive by themselves or grow into larger businesses which may be still more efficient The retention of inefficient small business may involve considerable waste of national resources The use of the cartel system for this purpose, with fixed prices and production quotas, may prevent the weeding-out of inefficient business firms even in industries where the typical firm would continue to be small in a free market (On this basis, anti-chain store and resale price maintenance legislation might be considered fascist measures)

One of the achievements of fascism that has attracted widest attention has been its apparent ability to reduce unemployment What are the reasons for this reduction? They are: (1) The tremendous increase of expenditure for armaments and military purposes This reduces rather than increases national wealth (2) The maintenance of a large standing army These men are consuming rather than producing wealth (Whatever useful work is performed by the WPA and the CCC is a net gain as contrasted with this, yet we count them among the unemployed) (3) The prevention of imports through exchange controls, resulting in great expansion of certain domestic industries and particularly of domestic agriculture This has meant the diversion of labor into occupations where it is less efficient The statement of Hitler that Germany must "export or die" is a tacit admission of this The sum total of these measures simply shows that Germany has produced a smaller quantity of goods with more labor than would have been the case if this labor were efficiently applied She has not solved the unemployment problem, in one sense she has merely spread partial unemployment among all workers One other factor has operated to reduce unemployment Through state control of trade-unions it has been possible to prevent money wages from rising with the cost of living, thus reducing real wages

This last point offers food for thought for the American labor movement If American unions are unable to set wages at which it is economically possible to hire most of their members, there is some danger that "It can happen here" Many students of the problem are convinced that the rise of Hitler in Germany was primarily a reaction against the too-rapid advance of the German labor movement

Another Viewpoint on Fascism

We have been under considerable difficulty in the analysis of fascism, perhaps because fascism cannot be considered as an economic system in the same sense as socialism or capitalism. In one sense, fascism may be regarded merely as the extreme expression of economic nationalism. If this interpretation is accepted as correct, then external rather than internal conditions are chiefly responsible for the rise of fascism in Italy and Germany. The Smoot-Hawley tariff in the United States, high tariffs and import quotas in France, high tariffs in the new countries created by the Versailles Treaty, and the system of Empire Preference in the British Empire, deprived Germany and Italy of their most important foreign markets. In consequence, they have been forced to become much more self-sufficient than would be the case under more intelligent economic conditions of international trade. These two countries are not equipped with the natural resources to practice self-sufficiency so as to achieve a standard of living appropriate to a modern industrial nation. Hence the emphasis on war preparations, either as a serious intention for war of conquest or as a bluff to obtain the desired ends.

CHAPTER XXXVIII

Economic Planning in a Capitalistic Democracy

THE BEST approach to our problem is through a definition of capitalism That of Professor Pigou[1] can hardly be improved upon "A capitalist *industry* is one in which the material instruments of production are owned or hired by private persons and are operated at their orders with a view to selling at a profit the goods or services that they help to produce A capitalist *economy,* or capitalist system is one the *main part* of whose productive resources is engaged in capitalist industries"

Immediately some people will object that the very idea of central planning is inconsistent with capitalism unless it becomes fascist planning, and inconsistent with democracy unless it becomes socialist planning This does not necessarily follow, although the avoidance of these two horns of the dilemma must necessarily limit the field within which planning may be considered both capitalistic and democratic The avoidance of socialism and fascism must be found both in the statement of the ends to be achieved by planning and in the techniques for achieving those ends

We might choose as a statement for such ends, "the elimination or minimization of business cycle fluctuations," or "the fullest possible utilization of resources" Note that we say nothing directly about welfare or the distribution of income There can be little doubt, however, that the attainment of these ends would increase the material "well-being" of the nation Also, success in eliminating the business cycle and in keeping resources more fully employed would undoubtedly increase the incomes of most of the low income groups The relative share in national income received by the lower income groups might very likely increase There can be little doubt that their absolute real income would be greatly enhanced

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[1] Pigou, A C, *Socialism Versus Capitalism,* p 1, Macmillan & Co, Ltd, London, 1937 Reprinted by permission of the Macmillan Company

Most of the chapter will be devoted to a consideration of possible techniques although we might well precede this by a statement of some general principles which these techniques must follow if the "pitfalls" of fascism and socialism are to be avoided (1) Consumers must be considered to be the best judges of what is best for their own individual welfare as expressed by their demand for goods and services in a free market Such choices may be influenced by education or propaganda but they may not be coerced, either by rationing of goods or by arbitrary control of allocation of productive resources (2) Some goods or services, whose widespread or general consumption is considered to be "socially desirable" by a democratic decision, may be provided by the state either without charge or at prices lower than those which would be charged by private industry (These are really "islands of socialism in a sea of capitalism " If the islands become too numerous, we have a socialist continent with capitalist lakes)[2] (3) The amount of individual saving must be left to the individual as influenced by the rate of interest and such other personal considerations as may happen to determine his choice between present and future consumption (4) The *direction* of investment (other than that made by the state) must be determined by the competition of various opportunities for profit to obtain the supply of available capital at prevailing interest rates This does not prevent the state from attempting to control either the interest rate or the total quantity of money, or both, in an attempt to equate the rate of investment with the rate of saving (If, however, the bulk of direct investment is made by the state rather than by private individuals or private institutions, the socialist islands again threaten to become a mainland) (5) Competition must be relied upon to establish prices as far as possible Where competition does not exist or is not practicable, price regulation may be necessary The goal of such price regulation must be prevention of monopolistic restriction of output rather than the elimination of profits

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[2] *Ibid*, p 10

We might summarize these points by saying that their general implication is that the technique of planning should be along the lines of "making capitalism work the way it is supposed to work" The primary function of the state thus becomes the determination and enforcement of "the rules of the game" The state becomes an active participant itself only in those cases where the rules will not work We shall now attempt to discover what techniques of planning are possible within these rather narrow limits

Provision of Information

No scheme of planning, whether capitalist or otherwise, can promise much without adequate data on which to base decisions While tremendous improvements have been made in the amount and quality of both government and private business statistics in the last twenty years, we have only begun to scratch the surface in accumulating data for the solution, or even for the intelligent discussion of many economic problems. Many theories of the cause of business cycles, for example, center around some phase of saving, investment, or the rate of capital goods production, yet the available data permit only the rashest kind of wild guesses as to quantitative changes in these factors Even on unemployment, the reduction of which is one of the avowed ends of most planning schemes, our most adequate data up till now has been that of censuses which are out of date by the time they are compiled and published As soon as various state unemployment insurance plans come into operation, we may have accurate monthly or weekly information concerning the number of unemployed *who are eligible for benefit payments* It will still require some inspired statistical guessing to estimate *total unemployment* on the basis of this partial sample For banking, our best data includes only reporting member banks of the Federal Reserve System and does not cover large numbers of nonmember state and private banks

Even though nothing further were done in the way of planning, the provision of more adequate information might enable individual businesses and industries to plan their own operations better A few economists have even predicated a theory of business cycles upon errors in the decisions of businessmen which are based on lack of information Even though other economists dispute this as a primary causal theory, they would doubtless agree that the possession of better information might be an important element in lessening the amplitude of business fluctuations Adequate information all along the line from primary producer to ultimate consumer as to inventories and volume of sales should help to prevent accumulation of such large excess inventories as have existed in the past Smaller excess inventories will tend both to lessen the amount of price decline in depression and to shorten the length of time which is necessary to reduce them In addition to this, if primary producers have adequate information that dealers' stocks are getting low in relation to the volume of sales, it may appear to be a safe procedure to increase production in anticipation of increased sales This practice would tend to bring recovery earlier than might be expected in the absence of such information.

Businessmen might bear this in mind when tempted to grumble about the work of filling out reports for the government On its part, the government might do well to accept the recommendations and to further the work of the Central Statistical Board to avoid needless duplication in such reports This might then be made the basis of obtaining more information at the same cost to the businessman and to the government

Definition of the Fields of Various Types of Competition and Monopoly

In place of the present half-enforcement, or sporadic enforcement, of the anti-trust laws, the government might formulate a definite policy on the nature of competition or monopoly which appears to be best suited to each industry (See Chapter XI) Under the present unsettled policy, no large firm which is in a dominant position in an industry can feel sure that it may expand its capital equipment and its output without running afoul of the anti-trust laws New firms, on the other hand, may be deterred from entering the industry through fear of possible expansion on the part of the large firm While such fears may be of negligible importance in times of prosperity and lax enforcement, they may be a contributing element in deterring new capital investment in times of depression when it is most needed

In a field such as this where there are so many conflicting interests, and where changes in technology may alter the entire nature of an industry, no one would be so foolhardy as to suggest an absolutely rigid plan, which would not be subject to alteration in the light of experience This does not mean, however, that this is a question that can be dumped in the lap of some administrative board trusted to act on its own discretion Uncertainty as to the probable decisions of such a board might be as great or greater than present uncertainty as to the degree of lethargy in the Federal Trade Commission and the

Department of Justice and the uncertainty as to the probable attitude of the courts It would seem, nevertheless, that we should be able to formulate some statements of general policy on this question which might be a much more definite guide for business action than we now have If a more definite policy is not formulated, the request of businessmen that plans for combination be approved or disapproved by the Department of Justice before they are adopted does not seem to be unreasonable

Definition of the Fields of Public and Private Enterprise

This is another question which is not strictly so much one of planning as it is one of statement of policy The production and distribution of electric power is the most conspicuous example of the lack of such a policy at present The obvious difficulty is the lack of a definite majority political opinion on either side of the question of public ownership The advocates of public ownership are not strong enough to force the general adoption of their policy, while their opponents are not strong enough to prevent piecemeal adoption The unfortunate result is that neither public nor private investment is as great as it might be, for an expanding industry, if a definite policy were determined upon It is idle to hope that private interest will give up without a struggle, nor do the advocates of public ownership give any signs of relaxing their efforts A compromise might be effected, however, on the basis of limitation of territory for each of the two forms of ownership Such a compromise need not be the permanent solution, but if it is to be effective it must be for a sufficient length of time to permit reasonably safe investment in durable capital equipment

Coordination of Government Activities

Before a government can exercise much claim to wisdom in planning for general business activity, it would seem reasonable to expect that the various activities of the government itself should at least be designed so as not to work at cross purposes with each other The Treasury Department cannot have one monetary policy and the Federal Reserve Board another The State Department cannot have one foreign trade policy and the Commerce Department another The Interior Department cannot have one conservation policy and the Agriculture Department another This is not a criticism of these departments or agencies They must administer the laws which are given to them The fault lies in the passage of one piece of legislation after another with little regard to the completed whole into which they are expected to fit

Fundamentally, the difficulty lies in the problem of determining what is in the interest of the nation as a whole and then in making that interest politically articulate The only economic interest which all of us have in common is that we are all consumers As such, we are obviously all benefited by a greater total output of goods at lower prices Unfortunately, each of us is more concerned about his own individual income as a producer A 10 per cent increase in my own wages or profits will more than offset a 20 per cent increase in prices of any group of goods that comprises anything less than half of my total expenditures Consequently, those of us who are faced with foreign competition lobby for a tariff on our product Those of us who are small retailers lobby for anti-chain store laws Those of us who are interested in shipping lobby for ship subsidies or for laws preferential to our own ships Those of us who are butter producers lobby for a tax on oleomargarine Each of these types of legislation, and many others are a bit of *governmental favoritism* which benefits one group as producers *at the expense of all the rest of the nation as consumers* If all measures of this sort were up for consideration at one time and the effects of each of them on the prices we pay were to be clearly shown, opposition might become active and effective. Instead of this, the measures are introduced slowly over a period of time. The people who can see their direct interest in them are active in bringing pressure on the legislature for their passage. The rest of us sit idly by, perhaps not even realizing that one chip after another is being whittled from our real income. Later on, after one measure after another has gone into effect, we begin to wonder what makes "the high cost of living," why "the farmer receives so small a per cent of the retail price of his product," and why "labor is unable to buy the goods which it produces." We have already reached a point where new special benefits to certain groups of producers (to farmers, for example) are advocated and enacted on the grounds of attempted remedy for the inequities created by old special benefits. This system will not work universally. Most of these special benefits tend to divert labor and capital into industries where they are less efficient than if they were allocated in an unsubsidized market. So long as resources are continued in employment in these less productive uses, *total national real income must be less than the possible maximum*. The only real remedy is the *removal* of the special benefits so that resources may be put to better uses. Short of this, "equality" can only be achieved by making everyone take an equal loss as his share of the reduced national income caused by misdirection of resources through tariffs and subsidies.

It may be objected that the removal of special privilege is an extremely difficult political feat. Granted. If we cannot accomplish this task, however, it would seem to be idle to talk of economic planning in a capitalist democracy. Any system of planning which contemplates the continuance permanently of special political privileges is not likely to stop short of fascism unless it happens to be overthrown by social revolution.

The inefficient producer, who is protected in his inefficiency by a tariff or subsidy, is in a rather poor position to point the finger of scorn at the inefficiency of socialism

Monetary Planning

This is one field in which at least a policy, if not planning itself, is practically forced upon us[3] Paradoxically, if we judge by results, even the absence of a policy is itself a policy, that is, if the government exercises no control over the quantity of bank credit, it is really following the policy of leaving control of the effective quantity of money to the discretion of the banks themselves

So pervasive is the influence of money upon all forms of economic activity that a successful solution of the monetary problem might obviate the necessity for the more elaborate and detailed schemes of planning in many other fields If we could manage money properly, we could probably eliminate the business cycle with the least possible amount of "government interference in business" ✓

A statement of the goal for monetary policy is much easier to make than a statement of the means for its attainment We may develop standards for a monetary policy by considering the situation which exists in a barter economy, where the supply of any one commodity constitutes a demand for all other commodities Under barter I cannot sell (swap) the goods which I possess without taking my payment in other goods Thus, such a thing as general overproduction is impossible There may be too great a quantity of one good and not enough of another, so that one product may have a low exchange value in terms of the other, but people with the scarce goods cannot dispose of them without taking the other goods in exchange

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[3] Henry C Simons, "Rules vs Authorities in Monetary Policy," in Mackenzie, Findlay, *Planned Society Yesterday, Today, Tomorrow* p 463, Prentice-Hall, Inc, New York, 1937.

One concept of a "perfect" monetary system is that it should leave the above situation unchanged In other words, money should be so managed that the only cause for changes in the prices of goods will be changes in their relative production and changes in desire or taste for them *Money itself* should exert no independent influence upon prices Professor Hayek and other economists call this the concept of *neutral money*

As our economic system is organized, changes in the quantity of money cause changes in the *relative* prices of different goods because we do not all have the quantity of money in our pockets, or in our bank accounts, changed at the same time and in the same proportion[4] Monetary changes make their effects felt first at one point in the system and later on at other points If the prices which constitute selling prices for any business firm rise faster as a result of an increase in money circulation than the prices which constitute its costs, that firm will be motivated to expand its output To do this, it will borrow from a banking system which *creates money* for the firm to use in the form of a credit to the firm's checking account This new money will help to increase prices elsewhere As long as there is unemployed labor and resources, selling prices for many firms will tend to rise more rapidly than costs When resources become more fully employed, costs will tend to catch up with selling prices. Meanwhile, the capital goods industries will have expanded output, not because there is an increased demand for capital goods due to increased saving but rather because of the fact that other firms are trying to take advantage of an increased *monetary* demand for their goods As soon as the money increase stops, demand for capital goods will fall off immediately As workers are discharged from capital goods industries, demand for consumers' goods will decrease As bank loans are repaid and not renewed, demand in terms of money for other goods will decrease and we are in a "vicious spiral of deflation"

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[4] See Chs. XXIX and XXXV.

To prevent this whole process by monetary control, we would have to keep the effective quantity of money constant Another way to express this is to say that we must keep the amount of money equal to the "money work to be done" In any period, the amount of money which can be used for making payments is the quantity of total cash and bank credit in existence, multiplied by its average velocity of circulation (the average number of times it changes hands) The "money work to be done" consists of the total amount of payments which must be made This work would be increased, for example, if a farmer, who had previously paid his hired men in farm produce, now started to pay them in cash It would be decreased if one firm, which formerly bought materials from another, should merge with the other firm

At present we have only roughly accurate estimates of the quantity of money and still rougher estimates of the velocity of circulation Concerning the "money work to be done," it might be difficult even to hazard a guess as to the direction in which it is changing Perfectly neutral money, therefore, is practically an impossible achievement

While perfect control may be an impossibility, we may easily prevent the amount of expansion and contraction which we have at present One step toward this would be to require the banks to maintain a 100 per cent reserve ratio against demand deposits In other words, the banks would not be allowed to create money on their own account, but would be reduced to the status of middlemen who would collect cash savings and lend them out again To be effective, however, this might have to be supplemented by measures designed to prevent the creation of other money substitutes by business firms themselves

Less drastic but perhaps less effective controls may be found in the full use of the powers of the Federal Reserve Board, plus variations in government fiscal policy with respect to taxation and borrowing (See Chapter XXXI) Even this would seem to require that all banks be compelled to become members of the Federal Reserve System

Conclusion

The difficulties which we have found in connection with all forms of planning are mostly traceable to deficiencies in our knowledge Whatever may happen to be our political, social, or economic philosophy, we are challenged with the necessity of improving upon it As yet no one has all the answers There is plenty of room for you to contribute

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